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=> fil hcap
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FILE COVERS 1907 - 5 Oct 2007  VOL 147 ISS 16
FILE LAST UPDATED: 4 Oct 2007  (20071004/ED)

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 This file contains CAS Registry Numbers for easy and accurate
 substance identification.

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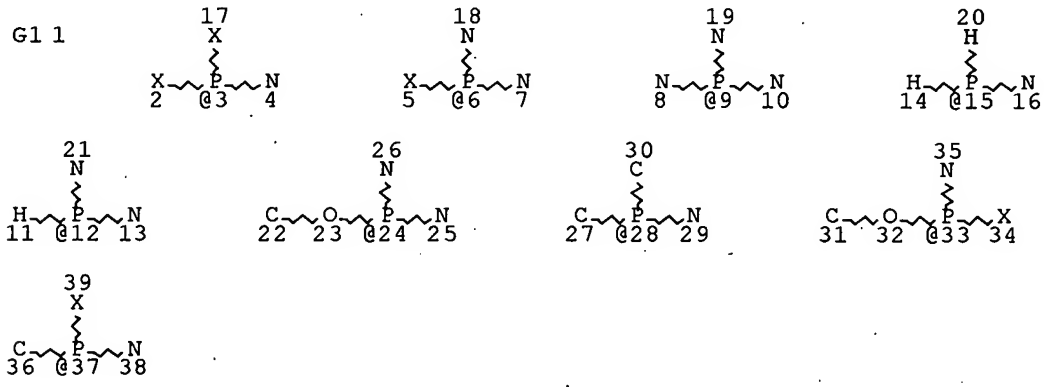


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DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  39

STEREO ATTRIBUTES: NONE
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L25         2789 SEA FILE=CAPLUS ABB=ON  PLU=ON  L24(L)PREP+NT/RL
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L40            9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND L38
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                 ID OR FLUID) OR (LIQUID OR MOLTEN)(2A)SALT)
L49           13 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L47 OR L40
L50           14 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L25 AND (L27 OR ACID) AND
                 (L38 OR BASE) AND SALT
L51           25 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L49 OR L50


=> d l51 ibib abs hitind hitstr tot

L51  ANSWER 1 OF 25  HCAPLUS  COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER:         2007:619842  HCAPLUS  Full-text
DOCUMENT NUMBER:          147:72880
TITLE:                    Preparation of phosphonium cation containing P-N bond
                          for ionic liquid
INVENTOR(S):              Muraishi, Kazuki; Sueto, Kumiko; Gao, Yuan
PATENT ASSIGNEE(S):       Kanto Denka Kogyo Co., Ltd., Japan
SOURCE:                   PCT Int. Appl., 109pp.
                          CODEN: PIXXD2
DOCUMENT TYPE:            Patent
LANGUAGE:                 Japanese
FAMILY ACC. NUM. COUNT:   1
PATENT INFORMATION:

     PATENT NO.          KIND   DATE        APPLICATION NO.          DATE
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     WO 2007063959        A1    20070607    WO 2006-JP323983         20061130
         W:  AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,
             CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD,
             GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN,
             KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK,
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RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT,
TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE,
IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ,
CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM

PRIORITY APPLN. INFO.: JP 2005-349163 A 20051202
JP 2006-188910 A 20060710

OTHER SOURCE(S): MARPAT 147:72880
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Title compds. I [R1-R11 = H, alkyl, alkenyl, etc.; X1-X3 = N, O, S, etc.; with the proviso that two of X1-X3 can not be N simultaneously] were prepared For example, reaction of methylbis(diethylamino)phosphine, e.g., prepared from phosphorous trichloride in 2 steps, with dibutylsulfate followed by treatment with lithium N,N-bis(trifluoromethanesulfonyl)imide afforded compound II, which showed the conductivity of 0.088 Sm-1 at 25°. Compds. I are claimed useful for elec. storage devices, lithium secondary batteries, etc.

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 37, 38, 52, 76

ST phosphonium cation phosphorous nitrogen bond ionic liq
; elec storage device phosphonium cation ionic liq;
lithium secondary battery phosphonium cation ionic liq

IT Capacitors
(double layer; preparation of phosphonium cation containing P-N bond for ionic liquid)

IT Solar cells
(dye-sensitized; preparation of phosphonium cation containing P-N bond for ionic liquid)

IT Secondary batteries
(lithium; preparation of phosphonium cation containing P-N bond for ionic liquid)

IT Actuators
Electrodeposition
Fuel cells
Ionic liquids
Lubricants
Plasticizers
Primary batteries
Sensors
Solvents
(preparation of phosphonium cation containing P-N bond for ionic liquid)

IT Polymers, uses
RL: TEM (Technical or engineered material use); USES (Uses)
(preparation of phosphonium cation containing P-N bond for ionic liquid)

IT 74-88-4, reactions 74-96-4 75-03-6 75-16-1 77-78-1, Dimethyl sulfate 78-79-5, reactions 107-08-4 109-89-7, Diethylamine, reactions 110-68-9 110-70-3 111-33-1 542-69-8 624-78-2 625-22-9, Dibutyl sulfate 628-17-1 917-54-4 2344-80-1 6482-24-2, 2-Methoxyethyl bromide 7719-12-2, Phosphorous trichloride
RL: RCT (Reactant); RACT (Reactant or reagent)

(preparation of phosphonium cation containing P-N bond for ionic liquid)

IT 685-83-6P 685-93-8P 1069-08-5P 4534-85-4P
6069-36-9P 32294-62-5P 40201-85-2P 40422-29-5P 77785-55-8P
79107-36-1P 81175-49-7P 83978-38-5P 83978-39-6P 87920-32-9P
777943-34-7P 940301-93-9P 940301-94-0P 940301-97-3P 940301-98-4P
940302-00-1P 940302-06-7P 940302-07-8P 940302-08-9P 940302-09-0P
940302-10-3P 940302-11-4P 940302-12-5P 940302-13-6P 940302-14-7P
940302-15-8P 940302-16-9P 940302-17-0P 940302-18-1P 940302-19-2P
940302-20-5P 940302-21-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of phosphonium cation containing P-N bond for ionic liquid)

IT 7664-41-7, Ammonia, reactions 10025-87-3, Phosphoric trichloride
RL: RGT (Reagent); RACT (Reactant or reagent)
(preparation of phosphonium cation containing P-N bond for ionic liquid)

IT 940301-48-4P 940301-50-8P 940301-51-9P 940301-53-1P 940301-55-3P
940301-57-5P 940301-59-7P 940301-60-0P 940301-61-1P 940301-62-2P
940301-63-3P 940301-64-4P 940301-66-6P 940301-68-8P 940301-70-2P
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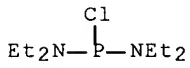
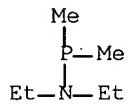
940301-82-6P 940301-83-7P 940301-84-8P 940301-85-9P 940301-87-1P
940301-89-3P 940301-91-7P 940301-92-8P 940301-95-1P 940301-96-2P
940302-02-3P 940302-04-5P 940302-05-6P 940911-61-5P 940911-62-6P
940913-64-4P
RL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(preparation of phosphonium cation containing P-N bond for ionic liquid)

IT 685-83-6P 685-93-8P 1069-08-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of phosphonium cation containing P-N bond for ionic liquid)

RN 685-83-6 HCAPLUS
CN Phosphorodiamidous chloride, N,N,N',N'-tetraethyl- (CA INDEX NAME)

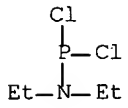


RN 685-93-8 HCAPLUS
CN Phosphinous amide, N,N-diethyl-P,P-dimethyl- (7CI, 8CI, 9CI) (CA INDEX NAME)



RN 1069-08-5 HCAPLUS

CN Phosphoramidous dichloride, N,N-diethyl- (CA INDEX NAME)



REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 2 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2006:1176514 HCAPLUS Full-text
DOCUMENT NUMBER: 145:489389
TITLE: Process for preparation of phosphonium ionic compounds as ionic liquids
INVENTOR(S): Sueto, Kumiko; Omae, Osamu; Gao, Yuan
PATENT ASSIGNEE(S): Kanto Denka Kogyo Co., Ltd., Japan
SOURCE: PCT Int. Appl., 48pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2006118232	A1	20061109	WO 2006-JP308948	20060428
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
WO 2006117872	A1	20061109	WO 2005-JP8229	20050428
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG, BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

PRIORITY APPLN. INFO.: WO 2005-JP8229 A 20050428
OTHER SOURCE(S): MARPAT 145:489389

AB This invention pertains to a method for producing phosphonium ionic compds. with general formula of P+(NR2R3)(NR4R5)(NR6R7)(XR1R8R9)•A- [wherein R1-R9 = independently H, alkyl, alkenyl, alkynyl, etc.; X = S, O, or C; A = anion], which comprises alkylation and anion exchange. For example, PO(NMe2)3 was reacted with Me2SO4, followed by the addition of Li+•(CF3SO2)2N- to give P+(OMe)(NMe2)3•(CF3SO2)2N- (70% in two steps). The title compds. are useful in elec. storage device, lithium secondary batteries, elec. double layer capacitor, solar cells, fuel cells, and as reaction solvents.

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 72

ST prepn phosphonium phosphoric amide ionic liq elec storage device

IT Electric double layer
(capacitor; preparation of phosphonium ionic compds. as ionic liqs.)

IT Solar cells
(dye-sensitization type; preparation of phosphonium ionic compds. as ionic liqs.)

IT Capacitors
(elec. double layer; preparation of phosphonium ionic compds. as ionic liqs.)

IT Secondary batteries
(lithium; preparation of phosphonium ionic compds. as ionic liqs.)

IT Alkylation
Anion exchange
Fuel cells
Ionic liquids
Secondary batteries
Solvents
(preparation of phosphonium ionic compds. as ionic liqs.)

IT 914300-28-0P 914300-33-7P 914300-38-2P 914300-44-0P
RL: DEV (Device component use); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(preparation of phosphonium ionic compds. as ionic liqs.)

IT 914291-26-2P 914291-27-3P 914291-28-4P 914300-29-1P 914300-30-4P
914300-31-5P 914300-34-8P 914300-35-9P 914300-36-0P 914300-39-3P
914300-40-6P 914300-41-7P 914300-46-2P 914403-10-4P
RL: DEV (Device component use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation of phosphonium ionic compds. as ionic liqs.)

IT 64-67-5, Diethyl sulfate 77-78-1, Dimethyl sulfate 110-68-9, Methylbutylamine 625-22-9, Dibutyl sulfate 680-31-9, Hexamethylphosphoric triamide, reactions 1608-26-0 72593-05-6 90076-65-6, Lithium bis(trifluoromethanesulfonyl)imide
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of phosphonium ionic compds. as ionic liqs.)

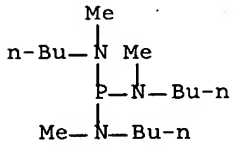
IT 16613-97-1P 32755-11-6P 914291-29-5P 914291-30-8P
914300-52-0P 914403-11-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of phosphonium ionic compds. as ionic liqs.)

IT 914300-52-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)
(preparation of phosphonium ionic compds. as ionic liqs
.)

RN 914300-52-0 HCAPLUS

CN Phosphorous triamide, N,N',N''-tributyl-N,N',N''-trimethyl- (CA INDEX NAME)



REFERENCE COUNT: 6 THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 3 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2006:722283 HCAPLUS Full-text

DOCUMENT NUMBER: 145:336110

TITLE: A new and convenient method for the synthesis of strong non-ionic bases

AUTHOR(S): Taillefer, Marc; Rahier, Nicolas; Hameau, Aurelien; Volle, Jean-Noel

CORPORATE SOURCE: Architectures Moleculaires et Materiaux Nanostructures, UMR CNRS 5076, Ecole Nationale Superieure de Chimie de Montpellier, Montpellier, F-34296, Fr.

SOURCE: Chemical Communications (Cambridge, United Kingdom) (2006), (30), 3238-3239
CODEN: CHCOFS; ISSN: 1359-7345

PUBLISHER: Royal Society of Chemistry

DOCUMENT TYPE: Journal

LANGUAGE: English

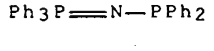
OTHER SOURCE(S): CASREACT 145:336110

AB Various strong nonionic phosphazene bases were obtained by a new, efficient and very simple method involving Ph3P:NLi (2) as precursor. 2 Was generated by double deprotonation of 1a (Ph3PNH2+Cl-), and revealed a strong reactivity towards chlorodiphenylphosphine. Reaction of 2 with 1 equiv Ph2PCl, followed by chlorination with C2Cl6 and subsequent reaction with an alkylamine or gaseous NH3 gave Ph3P:NPPh2NHR+Cl- (5a-c-H+: a-H+: R = H, 87%; b-H+: R = Bn, 76%; c-H+: R = tert-Bu, 90%), precursors of the corresponding bases. Subsequent reaction of 5a with BuLi, Ph2PCl, C2Cl6, alkylamine or gaseous NH3 and NaI gave the linear Ph3P:NPh2P:NPPh2NHR+I- (8a-c-H+: a-H+: R = H, 79%; b-H+: R = Bn, 67%; c-H+: R = tert-Bu, 79%), precursors of the corresponding bases. To obtain branched protonated bases, 2 was reacted with 0.5 equiv Ph2PCl. Following the procedure used for 5a-c and linear 8a-c the authors could thus synthesize the branched salt Ph3P:NPhP(N:PPh3)N(tert-Bu)H+I- (10-H+) in 81% yield. Reaction of 2 with 0.25 equiv PCl5 substituted three Cl atoms; subsequent treatment with benzylamine gave the branched salt Ph3P:NP(N:PPh3)2NBnH+Cl- (12-H+) in 58% isolated yield. Determination of the acid-base equilibrium was performed in DMSO with couples 5c/5c-H+ (DMSOpKa = 18.0 ± 0.5), 8c/8c-H+ (DMSOpKa = 19.8 ± 0.5) and 10/10-H+ (DMSOpKa = 23.6 ± 0.5).

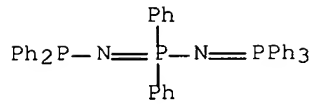
CC 29-7 (Organometallic and Organometalloidal Compounds)

ST strong nonionic phosphazene base prepn; aminophosphonium chloride deprotonation lithiation chlorodiphenylphosphine amine; phosphine

phosphazene chlorination hexachloroethane
IT Acidity
Amination
(preparation of strong non-ionic phosphazene bases)
IT Phosphazenes
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of strong non-ionic phosphazene bases)
IT Bases, preparation
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation of strong non-ionic phosphazene bases)
IT Amines, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(primary; preparation of strong non-ionic phosphazene bases)
IT 47869-10-3P 801189-99-1P 910048-49-6P 910048-50-9P 910048-51-0P 910048-52-1P 910048-53-2P 910048-54-3P
RL: PNU (Preparation, unclassified); PREP (Preparation)
(preparation of strong non-ionic phosphazene bases)
IT 24082-36-8P 910048-38-3P 910048-39-4P 910048-41-8P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation of strong non-ionic phosphazene bases)
IT 910048-42-9P 910048-46-3P 910048-48-5P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of strong non-ionic phosphazene bases)
IT 75-64-9, tert-Butylamine, reactions 100-46-9, Benzylamine, reactions 603-35-0, Triphenyl phosphine, reactions 1079-66-9, Chlorodiphenylphosphine
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of strong non-ionic phosphazene bases)
IT 21612-82-8P, Aminotriphenylphosphonium chloride 58901-51-2P 910048-40-7P 910048-43-0P 910048-44-1P 910048-45-2P 910048-47-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of strong non-ionic phosphazene bases)
IT 24082-36-8P 910048-39-4P
RL: PNU (Preparation, unclassified); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(preparation of strong non-ionic phosphazene bases)
RN 24082-36-8 HCAPLUS
CN Phosphinous amide, P,P-diphenyl-N-(triphenylphosphoranylidene)- (8CI, 9CI) (CA INDEX NAME)



RN 910048-39-4 HCAPLUS
CN Phosphinimidic amide, N'-(diphenylphosphino)-N-(triphenylphosphoranylidene)- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 23 THERE ARE 23 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 4 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1324716 HCAPLUS Full-text
DOCUMENT NUMBER: 144:232984
TITLE: Ionic liquids-media for unique phosphorus chemistry
AUTHOR(S): Amigues, Eric; Hardacre, Christopher; Keane, Gillian; Migaud, Marie; O'Neill, Maeve
CORPORATE SOURCE: QUILL and School of Chemistry, Queens University Belfast, Belfast, BT9 5AG, UK
SOURCE: Chemical Communications (Cambridge, United Kingdom) (2006), (1), 72-74
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 144:232984

AB Ionic liqs. have been shown to offer hitherto unseen control as both a storage solvent for PCl3 and POCl3 and reaction media for fluorination and mixed anhydride formation under benign conditions.

CC 28-9 (Heterocyclic Compounds (More Than One Hetero Atom))
Section cross-reference(s): 29

ST storage solvent phosphorus chloride fluorination mixed anhydride prepn; phosphorus trichloride oxychloride storage ionic liq; halogen exchange stability phosphorus trichloride oxychloride storage ionic liq; ionic liq media unique phosphorus chem

IT Ionic liquids
Solvents
Stability
Substitution reaction, nucleophilic
(applications of ionic liqs. as storage solvents for phosphorous trichloride and phosphorous oxychloride and study of their applicability as reaction media for fluorination and mixed anhydride formation under benign conditions)

IT Halogenation
(transhalogenation; applications of ionic liqs. as storage solvents for phosphorous trichloride and phosphorous oxychloride and study of their applicability as reaction media for fluorination and mixed anhydride formation under benign conditions)

IT 7719-12-2, Phosphorous trichloride 10025-87-3, Phosphoric trichloride 145022-44-2, 1-Ethyl-3-methylimidazolium triflate 145022-45-3, 1-Ethyl-3-methylimidazolium methanesulfonate 174501-65-6, 1-Butyl-3-methylimidazolium tetrafluoroborate 174899-83-3, 1-Butyl-3-methylimidazolium N,N-bis(trifluoromethylsulfonyl)amide 223437-11-4, N,N-Butylmethylpyrolidinium bis(trifluoromethanesulfonyl)amide 742079-20-5
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(applications of ionic liqs. as storage solvents

for phosphorous trichloride and phosphorous oxychloride and study of their applicability as reaction media for fluorination and mixed anhydride formation under benign conditions)

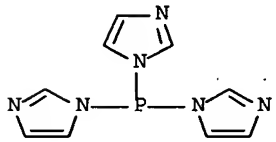
IT 7664-38-2P, Phosphoric acid, preparation 13537-32-1P, Phosphorofluoridic acid 13779-41-4P, Phosphorodifluoridic acid 13779-42-5P, Phosphorochloridic acid 13779-49-2P, Phosphorodichloridic acid 14939-33-4P, Phosphonochloridic acid 14939-40-3P, Phosphonic dichloride 876179-29-2P 876179-33-8P 876179-37-2P 876179-44-1P 876179-48-5P 876179-53-2P 876179-57-6P 876179-60-1P
RL: PNU (Preparation, unclassified); PREP (Preparation)
(applications of ionic liqs. as storage solvents for phosphorous trichloride and phosphorous oxychloride and study of their applicability as reaction media for fluorination and mixed anhydride formation under benign conditions)

IT 7783-55-3P, Phosphorous trifluoride
RL: SPN (Synthetic preparation); PREP (Preparation)
(applications of ionic liqs. as storage solvents for phosphorous trichloride and phosphorous oxychloride and study of their applicability as reaction media for fluorination and mixed anhydride formation under benign conditions)

IT 73946-92-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of tri(imidazolium)phosphine trichloride)

IT 73946-92-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of tri(imidazolium)phosphine trichloride)

RN 73946-92-6 HCAPLUS
CN 1H-Imidazole, 1,1',1''-phosphinidynetris- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 5 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2005:1007246 HCAPLUS Full-text
DOCUMENT NUMBER: 145:145791
TITLE: Selective synthesis of the iminophosphoranes and phosphorus ylides from (alkylamino)phosphonium salts. Comparative study of electrochemical reduction with the base method
AUTHOR(S): Okazaki, Yuichi; Takeuchi, Akimasa; Ninomiya, Yoshihiko; Koketsu, Jungo
CORPORATE SOURCE: Department of Applied Chemistry, College of Engineering, Chubu University, 1200 Matsumoto-cho, Kasugai, 487-8501, Japan
SOURCE: Electrochemistry (Tokyo, Japan) (2005), 73(9), 798-806
CODEN: EECTFA; ISSN: 1344-3542
PUBLISHER: Electrochemical Society of Japan
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 145:145791

AB Electrochem. reduction of substituted (alkylamino)phosphonium salts was carried out to confirm the generations of iminophosphoranes and P ylide, and compared with the results of the base method. The Wittig and aza-Wittig reaction under the presence of benzaldehyde confirmed the generations of iminophosphoranes and P ylides. It is possible to synthesize selectively both the iminophosphoranes and the P ylides from a single (alkylamino)phosphonium salt by the electrochem. reduction or by the base method under mild conditions. As a method of dehydrogenation reaction, the electrochem. reduction can play a similar role as strong bases such as Na amide, NaOMe, NaOPh, and DBU.

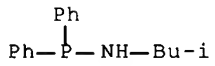
CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 72

IT Bases, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(effect on chemoselectivity; comparative study of electrochem. reduction with base method for selective synthesis of iminophosphoranes and phosphorus ylides from (alkylamino)phosphonium salts)

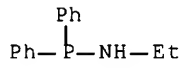
IT 31036-93-8P, (Isobutylamino)diphenylphosphine 41391-96-2P, (Ethylamino)diphenylphosphine 51439-15-7P, (Butylamino)diphenylphosphine 382624-25-1P, (Cyclohexylamino)diphenylphosphine
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(quaternization; comparative study of electrochem. reduction with base method for selective synthesis of iminophosphoranes and phosphorus ylides from (alkylamino)phosphonium salts)

IT 31036-93-8P, (Isobutylamino)diphenylphosphine 41391-96-2P, (Ethylamino)diphenylphosphine 51439-15-7P, (Butylamino)diphenylphosphine 382624-25-1P, (Cyclohexylamino)diphenylphosphine
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(quaternization; comparative study of electrochem. reduction with base method for selective synthesis of iminophosphoranes and phosphorus ylides from (alkylamino)phosphonium salts)

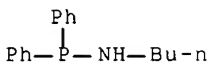
RN 31036-93-8 HCAPLUS
CN Phosphinous amide, N-(2-methylpropyl)-P,P-diphenyl- (9CI) (CA INDEX NAME)



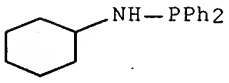
RN 41391-96-2 HCAPLUS
CN Phosphinous amide, N-ethyl-P,P-diphenyl- (7CI, 9CI) (CA INDEX NAME)



RN 51439-15-7 HCAPLUS
CN Phosphinous amide, N-butyl-P,P-diphenyl- (9CI) (CA INDEX NAME)



RN 382624-25-1 HCAPLUS
CN Phosphinous amide, N-cyclohexyl-P,P-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 17 THERE ARE 17 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 6 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:460850 HCAPLUS Full-text
DOCUMENT NUMBER: 141:277698
TITLE: Stereoselective Reactions of Chiral Amines with Racemic Chlorophosphines
AUTHOR(S): Gryshkun, Evgenyi V.; Andrushko, Natalia V.; Kolodiazhnyi, Oleg I.
CORPORATE SOURCE: National Academy of Sciences of Ukraine, Kiev, Ukraine
SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (2004), 179(6), 1027-1046
CODEN: PSSLEC; ISSN: 1042-6507
PUBLISHER: Taylor & Francis, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:277698

AB Racemic chlorophosphines react stereoselectively with chiral 1-phenylethylamines or amino acid esters to give diastereomerically enriched aminophosphines 3 (84 %de and 85 % yield for (RP,S)- tBuPhPNHCHMePh from tBuPhPCl and (S)-NH2CHMePh), which were isolated as diastereomerically pure crystalline borane complexes. Oxidation, thionation, the reaction with MeI provide optically active derivs. of aminophosphines. (R,S)- and (S,S)-stereoisomers of phosphinic acid amides were separated by crystallization and flash-chromatog. The stereochem. properties of P acid amides were studied. The mechanism of asym. induction at the trivalent P atom was rationalized.

CC 29-7 (Organometallic and Organometalloidal Compounds)
IT Bases, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(Bronsted bases, stereoselectivity affected by; stereoselective reactions of chiral amines with racemic chlorophosphines and stereospecific reactions of resulting aminophosphines)
IT 168431-82-1P, Methyl (S)-2-[[(R)-tert-butyl(phenyl)phosphino]amino]-4-methylpentanoate 220812-74-8P, (S)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinous amide 220812-79-3P, (R)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinous amide 538311-43-2P, (R)-P-Mesityl-P-phenyl-N-((S)-1-phenylethyl)phosphinous amide 757208-04-1P 757955-86-5P 757960-25-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

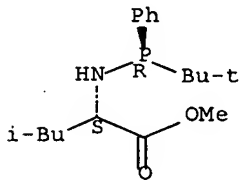
(stereoselective reactions of chiral amines with racemic chlorophosphines and stereospecific reactions of resulting aminophosphines)

IT 168431-86-5P, Methyl (S)-2-[[(R)-tert-butyl(phenyl)phosphinyl]amino]-4-methylpentanoate 168431-88-7P, Methyl (S)-2-[[(S)-tert-butyl(phenyl)phosphinyl]amino]-4-methylpentanoate 171776-23-1P, Methyl (S)-2-[[(S)-tert-butyl(phenyl)phosphinothioyl]amino]-4-methylpentanoate 171776-24-2P, Methyl (S)-2-[[(R)-tert-butyl(phenyl)phosphinothioyl]amino]-4-methylpentanoate 220812-76-0P, (S)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinothioic amide 220812-77-1P, (R)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinothioic amide 538311-41-0P, (S)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinic amide 538311-44-3P, (R)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinic amide 757207-98-0P, Methyl (S)-2-[[(R)-tert-butyl(phenyl)phosphino]amino]-3-methylbutanoate 757208-15-4P, (R)-tert-Butyl(methyl)(phenyl)[((S)-1-phenylethyl)amino]phosphonium iodide
RL: SPN (Synthetic preparation); PREP (Preparation)
(stereoselective reactions of chiral amines with racemic chlorophosphines and stereospecific reactions of resulting aminophosphines)

IT 168431-82-1P, Methyl (S)-2-[[(R)-tert-butyl(phenyl)phosphino]amino]-4-methylpentanoate 220812-74-8P, (S)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinous amide 220812-79-3P, (R)-P-tert-Butyl-P-phenyl-N-((S)-1-phenylethyl)phosphinous amide 538311-43-2P, (R)-P-Mesityl-P-phenyl-N-((S)-1-phenylethyl)phosphinous amide
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(stereoselective reactions of chiral amines with racemic chlorophosphines and stereospecific reactions of resulting aminophosphines)

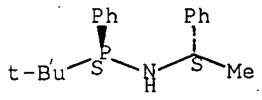
RN 168431-82-1 HCAPLUS
CN L-Leucine, N-[(R)-(1,1-dimethylethyl)phenylphosphino]-, methyl ester (9CI) (CA INDEX NAME)

Absolute stereochemistry.



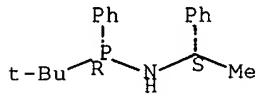
RN 220812-74-8 HCAPLUS
CN Phosphinous amide, P-(1,1-dimethylethyl)-P-phenyl-N-[(1S)-1-phenylethyl]-, [P(S)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



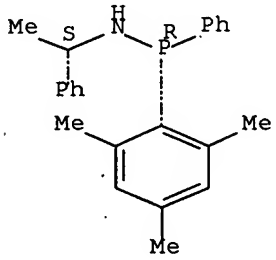
RN 220812-79-3 HCAPLUS
CN Phosphinous amide, P-(1,1-dimethylethyl)-P-phenyl-N-[(1S)-1-phenylethyl]-, [P(R)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



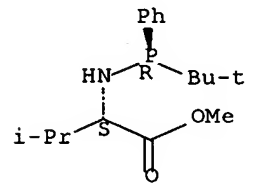
RN 538311-43-2 HCAPLUS
CN Phosphinous amide, P-phenyl-N-[(1S)-1-phenylethyl]-P-(2,4,6-trimethylphenyl)-, [P(R)]- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



IT 757207-98-0P, Methyl (S)-2-[[(R)-tert-butyl(phenyl)phosphino]amino]-3-methylbutanoate
RL: SPN (Synthetic preparation); PREP (Preparation)
(stereoselective reactions of chiral amines with racemic chlorophosphines and stereospecific reactions of resulting aminophosphines)
RN 757207-98-0 HCAPLUS
CN L-Valine, N-[(R)-(1,1-dimethylethyl)phenylphosphino]-, methyl ester (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 7 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2004:194888 HCAPLUS Full-text
DOCUMENT NUMBER: 140:391324
TITLE: Transformation between Diphosphinoamines and Iminobiphosphines: a Reversible P-N-P ↔ N:P-P Rearrangement Triggered by Protonation/Deprotonation
AUTHOR(S): Fei, Zhaofu; Biricik, Nermin; Zhao, Dongbin; Scopelliti, Rosario; Dyson, Paul J.
CORPORATE SOURCE: Institut de Chimie Moleculaire et Biologique, Ecole Polytechnique Federale de Lausanne, EPFL-BCH, Lausanne, CH-1015, Switz.
SOURCE: Inorganic Chemistry (2004), 43(7), 2228-2230
CODEN: INOCAJ; ISSN: 0020-1669
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 140:391324

AB Protonation of diphosphinoamines attached to pyridine at the ortho-position quant. affords the corresponding iminobiphosphine isomers. For example, 2,6-[(Ph2P)2N]2C5H3N reacted with HBF4·Et2O giving 2,6-(Ph2PPh2P:N)2C5H3NH+BF4-. The starting material can be recovered quant. by deprotonation with base. The system represents a new type of mol. switch. X-ray crystallog. was used to establish the structures of 2,6-[Ph2PPh2P:N]2C5H3NH+BF4- and 2-(Ph2PPh2P:N)C5H4NH+BF4-.

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

ST diphosphinoamine pyridine prepn reversible rearrangement protonation tetrafluoroboric trifluoromethanesulfonic acid; iminobiphosphine salt prepn structure reversible rearrangement deprotonation base; crystal structure iminobiphosphine tetrafluoroborate salt; mol structure iminobiphosphine tetrafluoroborate salt

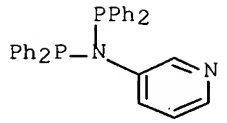
IT Crystal structure
Molecular structure
(of iminobiphosphine tetrafluoroborate salts)

IT 686276-03-9P 686276-04-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(attempted protonation; reversible rearrangement between diphosphinoamines and iminobiphosphines triggered by protonation/deprotonation)

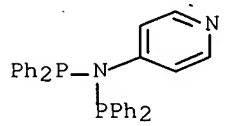
IT 125291-85-2P 644988-94-3P 686276-06-2P 686276-08-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reversible rearrangement between diphosphinoamines and iminobiphosphines triggered by protonation/deprotonation)

IT 686276-03-9P 686276-04-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(attempted protonation; reversible rearrangement between diphosphinoamines and iminobiphosphines triggered by protonation/deprotonation)

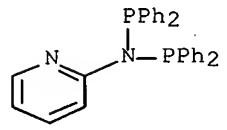
RN 686276-03-9 HCAPLUS
CN Phosphinous amide, N-(diphenylphosphino)-P,P-diphenyl-N-3-pyridinyl- (9CI) (CA INDEX NAME)



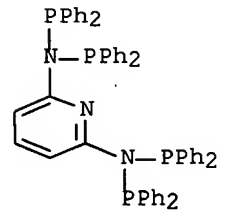
RN 686276-04-0 HCAPLUS
CN Phosphinous amide, N-(diphenylphosphino)-P,P-diphenyl-N-4-pyridinyl- (9CI) (CA INDEX NAME)



IT 125291-85-2P 644988-94-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reversible rearrangement between diphosphinoamines and iminobiphosphines triggered by protonation/deprotonation)
RN 125291-85-2 HCAPLUS
CN Phosphinous amide, N-(diphenylphosphino)-P,P-diphenyl-N-2-pyridinyl- (9CI) (CA INDEX NAME)



RN 644988-94-3 HCAPLUS
CN Phosphinous amide, N,N'-2,6-pyridinediylbis[N-(diphenylphosphino)-P,P-diphenyl- (9CI) (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 8 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:931305 HCAPLUS Full-text
DOCUMENT NUMBER: 140:4839
TITLE: Process for hydrogenating or asymmetrical hydrogenating unactivated imines into amines using ruthenium complexes as catalysts
INVENTOR(S): Abdur-Rashid, Kamaluddin; Morris, Robert H.
PATENT ASSIGNEE(S): Can.
SOURCE: PCT Int. Appl., 31 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003097571	A1	20031127	WO 2003-CA689	20030515
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2489158	A1	20031127	CA 2003-2489158	20030515
AU 2003223806	A1	20031202	AU 2003-223806	20030515
EP 1503979	A1	20050209	EP 2003-720057	20030515
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005525426	T	20050825	JP 2004-505305	20030515
US 2005209487	A1	20050922	US 2005-513321	20050601
US 7256311	B2	20070814		

PRIORITY APPLN. INFO.: US 2002-380256P P 20020515
WO 2003-CA689 W 20030515
OTHER SOURCE(S): CASREACT 140:4839; MARPAT 140:4839

AB A process is described for the hydrogenation or asym. hydrogenation of dialkyl-, alkylalkenyl-, and dialkenyl-imines [e.g., N-(1,2,2-trimethylpropylidene)aniline] into the corresponding amines using a catalytic system comprising a base (e.g., potassium isopropoxide) and a ruthenium complex containing (1) a diamine and (2) a diphosphine ligand or monodentate phosphine ligands [e.g., RuHCl(R-BINAP)(R,R-DPEN)] in hydrogenation and asym. hydrogenation processes.

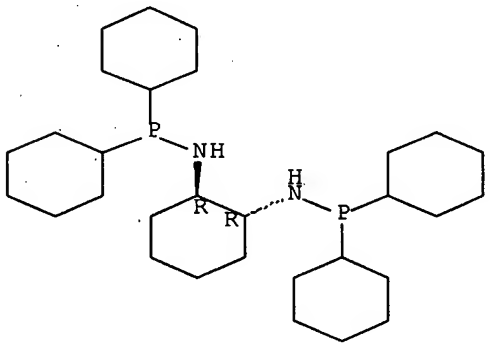
IC ICM C07C209-52
ICS C07C211-48
CC 25-4 (Benzene, Its Derivatives, and Condensed Benzenoid Compounds)
Section cross-reference(s): 45, 67
IT Bases, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(process for hydrogenating or asym. hydrogenating unactivated imines into amines using ruthenium complexes as catalysts prepared from)
IT 627502-59-4P 628729-41-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(process for hydrogenating or asym. hydrogenating unactivated imines into amines using ruthenium complexes as catalysts prepared from)
IT 627502-59-4P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)
(process for hydrogenating or asym. hydrogenating unactivated imines into amines using ruthenium complexes as catalysts prepared from)

RN 627502-59-4 HCAPLUS

CN Phosphinous amide, N,N'-(1R,2R)-1,2-cyclohexanediylbis[P,P-dicyclohexyl- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



REFERENCE COUNT: 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 9 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 2003:591192 HCAPLUS Full-text

DOCUMENT NUMBER: 139:149757

TITLE: Method for the separation of acids from chemical reaction mixtures by means of ionic fluids

INVENTOR(S): Volland, Martin; Seitz, Verena; Maase, Matthias; Flores, Miguel; Papp, Rainer; Massonne, Klemens; Stegmann, Veit; Halbritter, Klaus; Noe, Ralf; Bartsch, Michael; Siegel, Wolfgang; Becker, Michael; Huttenloch, Oliver

PATENT ASSIGNEE(S): Basf Aktiengesellschaft, Germany

SOURCE: PCT Int. Appl., 111 pp.
CODEN: PIXXD2

DOCUMENT TYPE: Patent

LANGUAGE: German

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003062251	A1	20030731	WO 2003-EP549	20030121

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 10202838	A1	20030807	DE 2002-10202838	20020124
DE 10230222	A1	20040122	DE 2002-10230222	20020704
DE 10248902	A1	20040429	DE 2002-10248902	20021018
DE 10251140	A1	20040513	DE 2002-10251140	20021031
CA 2473954	A1	20030731	CA 2003-2473954	20030121
EP 1470136	A1	20041027	EP 2003-704443	20030121
EP 1470136	B1	20070328		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
JP 2005515258	T	20050526	JP 2003-562128	20030121
CN 1622948	A	20050601	CN 2003-802742	20030121
AT 358134	T	20070415	AT 2003-704443	20030121
US 2005020857	A1	20050127	US 2004-500145	20040709
ZA 2004006664	A	20060628	ZA 2004-6664	20040823

PRIORITY APPLN. INFO.:

DE 2002-10202838	A	20020124
DE 2002-10230222	A	20020704
DE 2002-10248902	A	20021018
DE 2002-10251140	A	20021031
WO 2003-EP549	W	20030121

OTHER SOURCE(S): CASREACT 139:149757; MARPAT 139:149757

AB Disclosed is a method for producing aminodihalophosphines, diaminohalophosphines, triaminophosphines, phosphite diamides, aminophosphines, diaminophosphines, phosphite amide halogenides, and aminophosphine halogenides by separating an acid in the presence of an auxiliary base. Said auxiliary base (b) forms a salt with an acid, which is liquid at temps. at which the valuable product is not significantly decomposed during separation of the liquid salt, and (c) the salt of the auxiliary base and the valuable product or the solution of the valuable product form two immiscible phases in a suitable solvent. Thus, reaction of dichloro(phenyl)phosphine with EtOH in presence of 1-methylimidazole (auxiliary base) followed by separation of immiscible i-methylimidazole containing ionic liquid gave up to 96% of diethoxyphenylphosphine.

IC ICM C07F009-22
ICS C07B063-00

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 21

ST acid sepn chem reaction auxiliary base contg ionic fluid; aminodihalophosphine diaminohalophosphine triaminophosphine phosphite amide aminophosphine diaminophosphine prepn; auxiliary base mediated chem reaction

IT Fluids
Organic synthesis
Separation
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT Acids, reactions
Bases, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 71-36-3, 1-Butanol, reactions 123-75-1, Pyrrolidine, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(acetylation; method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 1521-51-3, 3-Bromocyclohexene
RL: RCT (Reactant); RACT (Reactant or reagent)
(dehydrobromination; method for separation of acids with auxiliary

base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 106-98-9, 1-Butene, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(hydroformylation; method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 14874-82-9
RL: CAT (Catalyst use); USES (Uses)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 64-17-5, Ethanol, reactions 68-26-8, all-trans-Retinol 75-84-3, Neopentyl alcohol 78-83-1, Isobutanol, reactions 78-92-2, 2-Butanol 83-34-1, 3-Methylindole 88-18-6, 2-tert-Butylphenol 90-43-7, [1,1'-Biphenyl]-2-ol 100-51-6, Benzyl alcohol, reactions 107-01-7, 2-Butene 112-67-4, Hexadecanoyl chloride 123-54-6, Acetylacetone, reactions 462-06-6, Fluorobenzene 556-82-1, Prenol 644-97-3, Dichloro(phenyl)phosphine 760-67-8, 2-Ethylhexanoic acid chloride 931-40-8, 4-(Hydroxymethyl)-1,3-dioxolan-2-one 1079-66-9, Chlorodiphenylphosphine 7719-12-2, Phosphorus trichloride 22277-50-5 26567-10-2 72102-69-3 472986-87-1 571170-98-4 571170-99-5 571171-01-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 571170-97-3P 571171-04-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 100-71-0, 2-Ethylpyridine 102-82-9, Tributylamine 109-06-8, 2-Methylpyridine 121-44-8, Triethylamine, reactions 616-47-7, 1-Methylimidazole 3001-72-7, 1,5-Diazabicyclo[4.3.0]non-5-ene 4316-42-1, 1-Butylimidazole 6703-22-6
RL: RGT (Reagent); RACT (Reactant or reagent)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

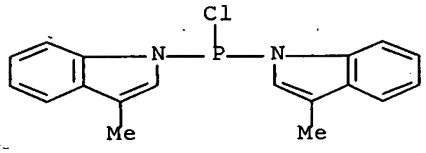
IT 78-10-4P, Tetraethoxysilane 105-46-4P, 2-Butyl acetate 110-19-0P, Isobutyl acetate 110-62-3P, Valeraldehyde 122-52-1P, Triethyl phosphite 123-86-4P, Butyl acetate 136-60-7P, Butyl benzoate 590-86-3P, Isovaleraldehyde 592-57-4P, 1,3-Cyclohexadiene 719-80-2P, Ethoxydiphenylphosphine 926-41-0P, Neopentyl acetate 1638-86-4P, Diethoxy(phenyl)phosphine 1825-65-6P, 1-Trimethylsilyloxybutane 1825-66-7P, 2-Trimethylsilyloxybutane 4030-18-6P, N-Acetylpyrrolidine 13257-81-3P, 4-Trimethylsilyloxypent-3-en-2-one 14642-79-6P, Benzyl trimethylsilyl ether 18246-63-4P 35487-17-3P 78405-71-7P 86178-32-7P 91993-35-0P, Dichloro(fluorophenyl)phosphine 188667-38-1P 205490-65-9P 220472-84-4P 472986-82-6P 509083-87-8P 509095-18-5P 512172-95-1P 528597-72-0P 571171-00-1P 571171-02-3P 571171-03-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

IT 571171-04-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

RN 571171-04-5 HCAPLUS

CN Phosphinous chloride, bis(3-methyl-1H-indol-1-yl)- (9CI) (CA INDEX NAME)

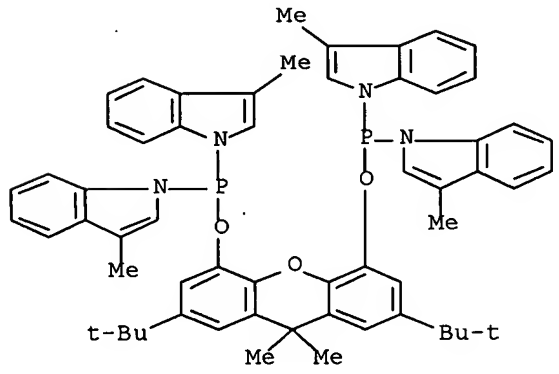


IT 472986-82-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(method for separation of acids with auxiliary base from chemical reaction mixts. by means of ionic fluids in organic synthesis)

RN 472986-82-6 HCAPLUS

CN Phosphinous acid, bis(3-methyl-1H-indol-1-yl)-, 2,7-bis(1,1-dimethylethyl)-9,9-dimethyl-9H-xanthene-4,5-diyl ester (9CI) (CA INDEX NAME)



REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 10 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1999:267972 HCAPLUS Full-text

DOCUMENT NUMBER: 131:19061

TITLE: Free and Supported Phosphorus Ylides as Strong Neutral Bronsted Bases

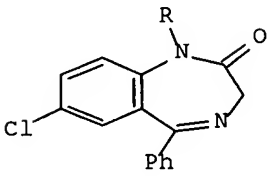
AUTHOR(S): Goumri-Magnet, Stephanie; Guerret, Olivier; Gornitzka, Heinz; Cazaux, Jean Bernard; Bigg, Dennis; Palacios, Francisco; Bertrand, Guy

CORPORATE SOURCE: Laboratoire de Chimie de Coordination, Toulouse, 31077, Fr.

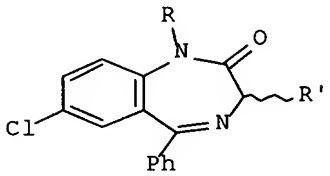
SOURCE: Journal of Organic Chemistry (1999), 64(10), 3741-3744
CODEN: JOCEAH; ISSN: 0022-3263

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 131:19061
GI



I



II

AB To a dimethoxymethane solution of P(NMe2)3 was added at room temperature 2-iodopropane. The solution was stirred under reflux for 72 h, producing [P(NMe2)3Pr-i]I in 91% yield. Potassium hydride was added at 0° to a suspension of [P(NMe2)3Pr-i]I in THF and stirred at room temperature, forming (NMe2)3P:C(Me)2 in 75% yield. A THF solution of (NMe2)3P:C(Me)2 was then added at -78° to a THF solution of benzodiazepines I (R = Me, CH2CO2t-Bu, or CH2Ph) and stirred at room temperature for 1 h. Alkyl halides R'X (R = CH2Ph, CH2CO2t-Bu, or Me), (X = Br or I) were then added and the solution was stirred for an addnl. hour, producing benzodiazepines II (same R' and R) in 38-67% yield. An x-ray crystal structure of II (R = R' = CH2Ph), (space group C222(1), Z = 8, wR2 = 0.3114) was determined The pKa value of [P(NMe2)3Pr-i]I was found to be between 26 and 28 using 31P NMR spectroscopy. The use of ylides as strong nonnucleophilic bases was investigated by reaction of P(NMe2)3 with Merrifield's resin.

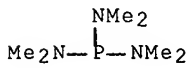
CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

IT Bases, preparation
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(Bronsted bases; preparation and use in benzodiazepine reactions)

IT 1608-26-0DP, reaction products with Merrifield's resin
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reaction with 2-iodopropane)

IT 1608-26-0DP, reaction products with Merrifield's resin
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reaction with 2-iodopropane)

RN 1608-26-0 HCAPLUS
CN Phosphorous triamide, N,N,N',N',N'',N''-hexamethyl- (CA INDEX NAME)



REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L51 ANSWER 11 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1996:744515 HCAPLUS Full-text
DOCUMENT NUMBER: 126:149660
TITLE: Room temperature inorganic "quasi-molten salts" as alkali-metal electrolytes
AUTHOR(S): Xu, K.; Zhang, S.; Angell, C. A.
CORPORATE SOURCE: Dep. Chem., Arizona State Univ., Tempe, AZ, 85287-1604, USA
SOURCE: Journal of the Electrochemical Society (1996), 143(11), 3548-3554
CODEN: JESOAN; ISSN: 0013-4651
PUBLISHER: Electrochemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Room temperature inorg. liqs. of high ionic conductivity were prepared by reacting Lewis acid AlCl3 with sulfonyl chlorides. The mechanism is not clear at this time since a crystal structure study of the 1:1 complex with CH3SO2Cl (Tm = 30°) is not consistent with a simple chloride transfer to create AlClO4- anions. The liquid is in a state somewhere between ionic and mol. A new term quasi-molten salt is adopted to describe this state. A comparably conducting liquid can be made using BCl3 in place of AlCl3. Unlike their organic counterparts based on ammonium cations (e.g., pyridinium or imidazolium) which reduce in the presence of alkali metals, this inorg. class of cation shows great stability against electrochem. reduction (.apprx.-1.0 V vs. Li+/Li), with the useful consequence that reversible lithium and sodium metal deposition/stripping can be supported. The electrochem. window for these quasi-salts with AlCl3 ranges up to 5.0 V, and their room temperature conductivities exceed 10-4 S/cm. They dissolve lithium and sodium tetrachloroaluminates up to mole fraction .apprx.0.6 at 100° and intermediate compns. are permanently stable at ambient. The resultant lithium or sodium salt solns. exhibit electrochem. windows of 4.5-5.0 V vs. Li+/Li or Na+/Na and show room temperature conductivities of 10-30 .apprx. 10-25 S/cm. In preliminary charge/discharge tests, the cell Li/quasi- ionic liquid electrolyte/Li1+xMn2O4 showed a discharge capacity of .apprx.110 mA-h/(g of cathode) and sustained 80% of the initial capacity after 60 cycles, indicating that these quasi- molten salt-based electrolytes are promising candidates for alkali-metal batteries.

CC 72-2 (Electrochemistry)
Section cross-reference(s): 52, 68, 76

ST room temp inorg quasi molten salt; alkali metal electrolyte quasi molten salt; sulfonyl aluminum chloride melt electrochem window; phosphoryl aluminum chloride melt electrochem window; electrochem potential window sulfonyl phosphoryl chloroaluminate; battery electrolyte inorg quasi molten salt

IT Electric potential
(electrochem. potential window of room temperature inorg. quasi-molten salts from aluminum chloride and sulfonyl chloride or phosphoryl chloride)

IT 186696-36-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(electrochem. potential window and room temperature inorg. quasi-molten salts as alkali-metal electrolytes)

IT 186696-38-8P 186696-40-2P 186696-41-3P
186696-43-5P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(ionic conductivity and electrochem. potential window and room temperature inorg.

quasi-molten salts as alkali-metal electrolytes)

IT 75-36-5, Acetyl chloride 124-63-0, Methanesulfonyl chloride
RL: PRP (Properties); RCT (Reactant); RACT (Reactant or reagent)
(reaction with aluminum chloride: electrochem. potential window and room temperature inorg. quasi-molten salts as alkali-metal electrolytes)

IT 6041-61-8P 13966-08-0P 14700-21-1P, Trichlorophosphazosulfonyl chloride
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(reaction with aluminum chloride: electrochem. potential window and room temperature inorg. quasi-molten salts as alkali-metal electrolytes)

IT 7446-70-0, Aluminum chloride, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with sulfonyl chloride or phosphoryl chloride for quasi-molten salts)

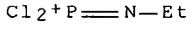
IT 186696-36-6P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(electrochem. potential window and room temperature inorg. quasi-molten salts as alkali-metal electrolytes)

RN 186696-36-6 HCAPLUS

CN Phosphorus(1+), dichloro[ethanaminato(2-)]-, tetrachloroborate(1-) (9CI) (CA INDEX NAME)

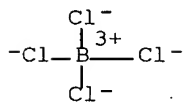
CM 1

CRN 186696-35-5
CMF C2 H5 Cl2 N P



CM 2

CRN 14911-67-2
CMF B Cl4
CCI CCS

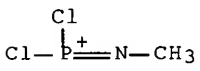


IT 186696-38-8P 186696-40-2P 186696-43-5P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(ionic conductivity and electrochem. potential window and room temperature inorg.
quasi-molten salts as alkali-metal electrolytes)

RN 186696-38-8 HCAPLUS
CN Phosphorus(1+), dichloro[methanaminato(2-)]-, (T-4)-tetrachloroaluminate(1-) (9CI) (CA INDEX NAME)

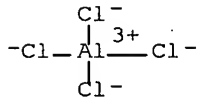
CM 1

CRN 186696-37-7
CMF C H3 Cl2 N P



CM 2

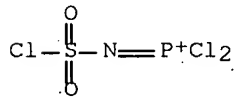
CRN 17611-22-2
CMF Al Cl4
CCI CCS



RN 186696-40-2 HCAPLUS
CN Phosphorus(1+), dichloro[sulfamoyl chloridato(2-)-κN]-, (T-4)-tetrachloroaluminate(1-) (9CI) (CA INDEX NAME)

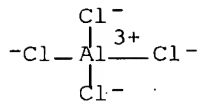
CM 1

CRN 186696-39-9
CMF Cl3 N O2 P S



CM 2

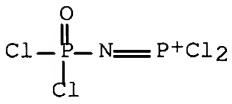
CRN 17611-22-2
CMF Al Cl4
CCI CCS



RN 186696-43-5 HCAPLUS
CN Phosphorus(1+), dichloro[phosphoramidic dichloridato(2-)-κN]-, (T-4)-tetrachloroaluminate(1-) (9CI) (CA INDEX NAME)

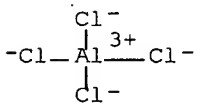
CM 1

CRN 186696-42-4
CMF Cl4 N O P2



CM 2

CRN 17611-22-2
CMF Al Cl4
CCI CCS



L51 ANSWER 12 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:39066 HCAPLUS Full-text
DOCUMENT NUMBER: 118:39066
TITLE: Protonated aminophosphines
AUTHOR(S): Nifant'ev, E. E.; Gratchev, M. K.; Burmistrov, S. Yu.; Antipin, M. Yu.; Struchkov, Yu. T.
CORPORATE SOURCE: V. I. Lenin Pedagog. State Univ., Moscow, 119882, Russia
SOURCE: Phosphorus, Sulfur and Silicon and the Related Elements (1992), 70(1-2), 159-74
CODEN: PSSLEC; ISSN: 1042-6507
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 118:39066
AB Reaction of tetrafluoroboric acid with aminophosphines R2PNR12 (R = NEt2, R1 = Et; R = NR12 = piperidino; R = Me2CH, Me3C, R1 = Et; R = Me3C, R1 = pyrrol-1-

yl) in Et2O give aminophosphonium salts R2P+H(NR12) BF4- in 67-93% yield. NMR spectroscopy and x-ray anal. of some reactants and products demonstrate that the protonation occurs at the phosphorus atom only. All aminophosphonium salts prepared appear not to phosphorylate nucleophiles, whereas phosphorylation occurs with added base. Thus, reaction of (Et2N)3P+H BF4- with PhCHO in CH2Cl2 in the presence of Et3N gave (Et2N)2P(O)CH(NEt2)Ph and (Et2N)2P(O)H.

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

IT Protonation and Proton transfer reaction
(of aminophosphines with tetrafluoroboric acid or pyridinium tetrafluoroborate)

IT 139190-39-9, Di-tert-butyl(pyrrol-1-yl)phosphine
RL: PROC (Process)
(crystal structure and protonation of, with tetrafluoroboric acid)

IT 100-52-7, Benzaldehyde, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(phosphorylation of, with aminophosphonium salt)

IT 139190-41-3P 139190-42-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

IT 36050-94-9P 126201-43-2P 139190-40-2P 139190-44-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 121-45-9P, Trimethyl phosphite
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, from methanolysis of aminophosphonium salt)

IT 90532-83-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, in reaction of aminophosphonium salt with benzaldehyde)

IT 139190-38-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, crystal structure, and protonation of, with tetrafluoroboric acid)

IT 126450-23-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, methanolysis, and phosphorylation with, of benzaldehyde)

IT 12408-02-5
RL: RCT (Reactant); RACT (Reactant or reagent)
(protonation and Proton transfer reaction, of aminophosphines with tetrafluoroboric acid or pyridinium tetrafluoroborate)

IT 2283-11-6, Hexaethylphosphorous triamide 13954-38-6 65768-04-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(protonation of, with tetrafluoroboric acid)

IT 505-07-7, Pyridinium tetrafluoroborate 16872-11-0, Tetrafluoroboric acid
RL: RCT (Reactant); RACT (Reactant or reagent)
(protonation with, of aminophosphine)

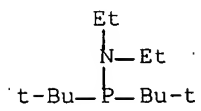
IT 139190-41-3P 139190-42-4P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

RN 139190-41-3 HCAPLUS

CN Phosphinous amide, P,P-bis(1,1-dimethylethyl)-N,N-diethyl-, mono[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

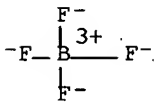
CM 1

CRN 139190-38-8
CMF C12 H28 N P



CM 2

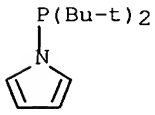
CRN 16872-11-0
CMF B F4 . H
CCI CCS



RN 139190-42-4 HCAPLUS
CN 1H-Pyrrole, 1-[bis(1,1-dimethylethyl)phosphino]-, mono[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

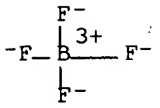
CM 1

CRN 139190-39-9
CMF C12 H22 N P



CM 2

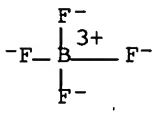
CRN 16872-11-0
CMF B F4 . H
CCI CCS



IT 126201-43-2P 139190-40-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 126201-43-2 HCAPLUS
CN Piperidine, 1,1',1''-phosphinidynetris-, mono[tetrafluoroborate(1-)] (9CI)
(CA INDEX NAME)

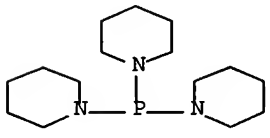
CM 1

CRN 16872-11-0
CMF B F4 . H
CCI CCS



CM 2

CRN 13954-38-6
CMF C15 H30 N3 P

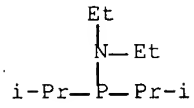


RN 139190-40-2 HCAPLUS
CN Phosphinous amide, N,N-diethyl-P,P-bis(1-methylethyl)-,
mono[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

CM 1

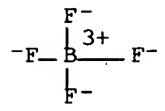
CRN 65768-04-9

CMF C10 H24 N P

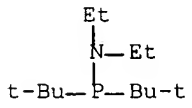


CM 2

CRN 16872-11-0
CMF B F4 . H
CCI CCS



IT 139190-38-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation, crystal structure, and protonation of, with tetrafluoroboric acid)
RN 139190-38-8 HCAPLUS
CN Phosphinous amide, P,P-bis(1,1-dimethylethyl)-N,N-diethyl- (9CI) (CA INDEX NAME)

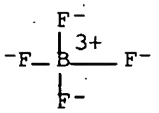


IT 126450-23-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, methanolysis, and phosphorylation with, of benzaldehyde)
RN 126450-23-5 HCAPLUS
CN Phosphorous triamide, hexaethyl-, mono[tetrafluoroborate(1-)] (9CI) (CA INDEX NAME)

CM 1

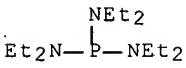
CRN 16872-11-0
CMF B F4 . H

CCI CCS

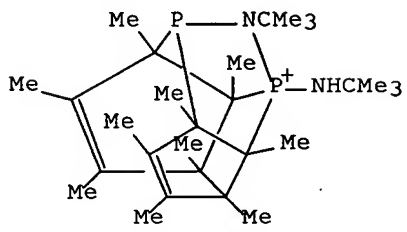


CM 2

CRN 2283-11-6
CMF C12 H30 N3 P



L51 ANSWER 13 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:7649 HCAPLUS Full-text
DOCUMENT NUMBER: 112:7649
TITLE: Synthesis, structure, and chemical reactivity of a stable pentamethylcyclopentadienyl-substituted phosphanylium ion: (pentamethylcyclopentadienyl)(tert-butylamino)phosphanylium tetrachloroaluminate
AUTHOR(S): Gudat, Dietrich; Nieger, Martin; Niecke, Edgar
CORPORATE SOURCE: Anorg. Chem. Inst., Univ. Bonn, Bonn, 5300/1, Fed. Rep. Ger.
SOURCE: Journal of the Chemical Society, Dalton Transactions: Inorganic Chemistry (1972-1999) (1989), (4), 693-700
CODEN: JCDTBI; ISSN: 0300-9246
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 112:7649
GI



II

AB Stable phosphanylium salts of [P(NHCMe3)(C5Me5)]+ (I) were obtained via different routes, viz. Al2Cl6-promoted halide abstraction from a chlorophosphine precursor; displacement of chloride by the nucleofugic anion, OSO2CF3-; and protonation of an iminophosphine precursor. A crystalline product was isolated in case of the tetrachloroaluminate of I, and its structure was investigated by x-ray diffractometry. The results confirm the presence of discrete cations, featuring η2 attachment of the C5Me5 ligand to P in the solid state. In solution, according to the results of NMR spectroscopic studies, the cation exhibits a fluxional structure with all 5 ring atoms becoming equivalent Investigations of the chemical reactivity of I include acid -base reactions and studies of the coordination chemical In addition to activity as both Lewis acid and base, which is a common feature for phosphanylium ions, I is the first two-coordinate P cation which reacted as a Broensted acid. Deprotonation initially gives the iminophosphine, P(:NCMe3)(C5Me5), which further reacts with I to yield a polycyclic cation, II, the structure of which was determined by x-ray diffraction. Reactions of I with transition metals involve oxidative addition of complex metal hydrides and coordination to reactive metal centers to give cationic complexes which are isolobal to transition metal carbene complexes. No evidence was obtained in these reactions to indicate any activation of the C5Me5-P bonds.

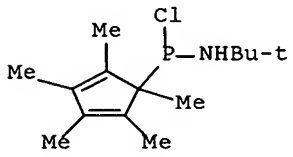
CC 29-11 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

IT 104324-91-6P 123864-49-3P 123864-51-7P 123864-52-8P
123864-56-2P 123864-58-4P 123894-50-8P 123924-24-3P 123990-29-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 104324-91-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 104324-91-6 HCAPLUS

CN Phosphonamidous chloride, N-(1,1-dimethylethyl)-N-(1,2,3,4,5-pentamethyl-2,4-cyclopentadien-1-yl)- (9CI) (CA INDEX NAME)



L51 ANSWER 14 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1988:570547 HCAPLUS Full-text
DOCUMENT NUMBER: 109:170547
TITLE: Associative and dissociative mechanisms for the reactions of N-tert-butyl-P-phenylphosphonamidic chloride with isopropylamine and tert-butylamine: competitive, kinetic, and stereochemical studies
AUTHOR(S): Freeman, Sally; Harger, Martin J. P.
CORPORATE SOURCE: Dep. Chem., Univ. Leicester, Leicester, LE1 7RH, UK
SOURCE: Journal of the Chemical Society, Perkin Transactions 2: Physical Organic Chemistry (1988), (1), 81-90
CODEN: JCPKBH; ISSN: 0300-9580

PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 109:170547

AB The substitution reactions of N-tert-butyl-P-phenylphosphonamidic chloride, PhP(O)(NHCMe3)Cl, with RNH2 (R = Me3C, Me2CH) can proceed by both associative and dissociative pathways. The associative pathway displays the characteristics expected of an SN2(P) mechanism, i.e. it is first-order in amine (nucleophile), it discriminates strongly against bulky amines (Me3CNH2), and it proceeds with complete stereospecificity. The dissociative pathway is less straightforward and embraces two mechanisms, both of which involve elimination-addition (EA). Both discriminate rather poorly between competing amines and form the substitution product nonstereospecifically, but they have different kinetic characteristics. One of the EA mechanisms is first-order in amine (base) and tends to be overshadowed by the SN2(P) reaction. With more hindered amines (Me3CNH2, EtMe2CNH2) however, steric hindrance makes the SN2(P) reaction less favorable and the EA mechanism becomes revealed more clearly proceeds with practically complete racemization. This is consistent with a simple EA mechanism in which the substitution product is derived from the free, sym. solvated, metaphosphonamidate intermediate. The other EA mechanism is second-order in amine (nucleophile and base) and is favored relative to the competing mechanisms by high concns. of amine. It involves preassocn. of the nucleophile with the conjugate base of the substrate and proceeds with extensive racemization.

CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22

IT 116762-41-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and salt formation of, with tert-butylamine or chiral methylbenzylamine)

IT 95980-86-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and sulfuration of)

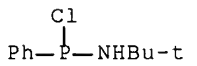
IT 116762-44-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation, base hydrolysis, and ozonolysis of)

IT 2627-86-3
RL: PROC (Process)
(salt formation of, with phenylphosphonamidothioic acid derivative)

IT 95980-86-2P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and sulfuration of)

RN 95980-86-2 HCAPLUS

CN Phosphonamidous chloride, N-(1,1-dimethylethyl)-P-phenyl- (9CI) (CA INDEX NAME)

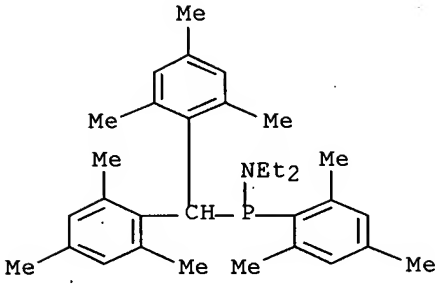


L51 ANSWER 15 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1985:185163 HCAPLUS Full-text

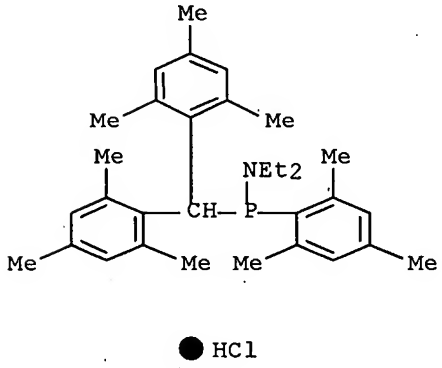
DOCUMENT NUMBER: 102:185163
TITLE: Attempted synthesis of trimesitylphosphaethene; observations related to the mechanism of acid catalyzed nucleophilic substitutions at phosphorus(III)
AUTHOR(S): Van der Knaap, Theodorus A.; Bickelhaupt, Friedrich
CORPORATE SOURCE: Vakgroep Org. Chem., Vrije Univ., Amsterdam, 1081 HV, Neth.
SOURCE: Phosphorus and Sulfur and the Related Elements (1984), 21(2), 227-36
CODEN: PREEDF; ISSN: 0308-664X
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Trimesitylphosphaethene (MesP:CMes2) (Mes = mesityl) is of interest as a sterically protected and presumably very stable phosphaalkene. Its synthesis was attempted along three different routes. The first two routes were modeled after the well-documented syntheses of phosphaalkenes by base catalyzed elimination of hydrogen chloride from MesPClCHMes2 (I). In the first approach, I could not be obtained from the precursor MesP(NEt2)CHMes2 by treatment with hydrogen chloride. Instead, the phosphonium salt [MesPH(NEt2)CHMes2]+Cl- (II) was formed; (II) is of interest as a "frozen" intermediate in the acid catalyzed nucleophilic substitution at phosphorus(III). The mechanistic implications of its formation and the reasons for its lack of reactivity are discussed. In the second approach, I was obtained from the reaction of MesPCl2 with α-potassiodimesitylmethane. However, several attempts to eliminate hydrogen chloride from I were unsuccessful. Similarly, the third route, aimed at the preparation of ClP:CMes2 from Cl2PCHMes2 (III) was thwarted because hydrogen chloride could not be eliminated from III. The unusual behavior of I, II and III can be explained by steric hindrance in these extremely crowded mols.

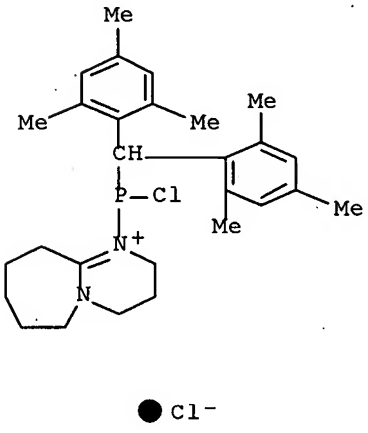
CC 29-7 (Organometallic and Organometalloidal Compounds)
ST trimesitylphosphaethene attempted prepn; phosphoethene trimesityl attempted prepn; acid catalyzed nucleophilic substitution phosphorus; steric hindrance mesitylphosphene
IT 96156-61-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with hydrogen chloride)
IT 733-07-3P 78204-84-9P 96156-60-4P 96156-64-8P 96156-65-9P 96156-67-1P 96156-68-2P 96156-69-3P 96156-70-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
IT 96156-61-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with hydrogen chloride)
RN 96156-61-5 HCAPLUS
CN Phosphinous amide, P-[bis(2,4,6-trimethylphenyl)methyl]-N,N-diethyl-P-(2,4,6-trimethylphenyl)- (9CI) (CA INDEX NAME)



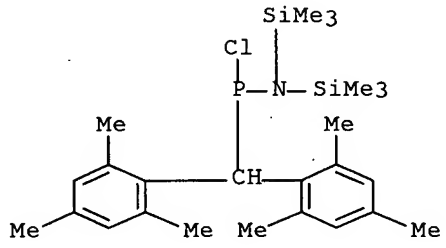
IT 96156-60-4P 96156-69-3P 96156-70-6P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 96156-60-4 HCAPLUS
CN Phosphinous amide, P-[bis(2,4,6-trimethylphenyl)methyl]-N,N-diethyl-P-(2,4,6-trimethylphenyl)-, monohydrochloride (9CI) (CA INDEX NAME)



RN 96156-69-3 HCAPLUS
CN Pyrimido[1,2-a]azepinium, 1-[[bis(2,4,6-trimethylphenyl)methyl]chlorophosphino]-2,3,4,6,7,8,9,10-octahydro-, chloride (9CI) (CA INDEX NAME)



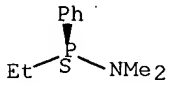
RN 96156-70-6 HCAPLUS
CN Phosphonamidous chloride, P-[bis(2,4,6-trimethylphenyl)methyl]-N,N-bis(trimethylsilyl)- (9CI) (CA INDEX NAME)



L51 ANSWER 16 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1980:620834 HCAPLUS Full-text
DOCUMENT NUMBER: 93:220834
TITLE: Optically active trivalent phosphorus acid esters: synthesis, chirality at phosphorus and some transformations
AUTHOR(S): Mikolajczyk, Marian
CORPORATE SOURCE: Cent. Mol. Macromol. Stud., Pol. Acad. Sci., Lodz, 90-362, Pol.
SOURCE: Pure and Applied Chemistry (1980), 52(4), 959-72
CODEN: PACHAS; ISSN: 0033-4545
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Optically active trivalent P acid esters [e.g., PhP(OMe)(Et)] and thio esters were prepared by 3 methods. These were asym. condensation of racemic trivalent P chlorides with achiral alcs. or thiols in the presence of chiral amines, asym. reaction of racemic chlorophosphines with menthol, and stereospecific preparation from optically active methylthioalkoxyphosphonium triflates. Optical purity and chirality at P were determined by chemical correlations. Nucleophilic substitution at chiral trivalent P occurs with inversion of configuration. Chiral tertiary phosphines (e.g., PhPMePr) of high optical purity were also prepared
CC 29-7 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 22
ST asym prepn phosphorus acid ester; thio ester phosphorus asym prepn; stereospecific prepn phosphorus acid ester; chirality phosphorus ester substitution
IT Asymmetric synthesis and induction
(of trivalent phosphorus acid esters and thio esters)
IT Stereochemistry
(stereospecificity, of preparation of trivalent phosphorus acid esters and thio esters)
IT 72315-67-4P 72315-69-6P 72315-73-2P 74171-25-8P 74184-50-2P 75466-61-4P 75466-62-5P 75466-63-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with base)
IT 52119-19-4P 72974-36-8P 74158-47-7P 75466-58-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP

(Preparation); RACT (Reactant or reagent)
(preparation and thionation of)
IT 1515-99-7P 17045-47-5P 21448-79-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by alkylation of chiral phosphorus acid ester)
IT 41899-40-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by elimination reaction of thioethyl phosphonium salt)
IT 69460-42-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by oxidation of phosphorus acid ester)
IT 55705-78-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of, by thionation of phosphorus acid ester)
IT 6588-28-9 15849-83-9 15849-86-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction of, with alcs., in presence of chiral amines, chiral phosphorus acid esters by)
IT 72974-36-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and thionation of)
RN 72974-36-8 HCAPLUS
CN Phosphinous amide, P-ethyl-N,N-dimethyl-P-phenyl-, (S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L51 ANSWER 17 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1977:164601 HCAPLUS Full-text
DOCUMENT NUMBER: 86:164601
TITLE: Synthesis and characterization of dicoordinate phosphorus cations. Compounds of the type [(R2N)2P]+[Y]- and their congeners
AUTHOR(S): Thomas, Michael G.; Schultz, Charles W.; Parry, R. W.
CORPORATE SOURCE: Dep. Chem., Univ. Utah, Salt Lake City, UT, USA
SOURCE: Inorganic Chemistry (1977), 16(5), 994-1001
CODEN: INOCAJ; ISSN: 0020-1669
DOCUMENT TYPE: Journal
LANGUAGE: English
AB On the basis of 1H and 31P NMR spectroscopy, IR data, measurements of elec. conductivity, and chemical information, the compound (Me2N)2PCl.AlCl3 is assigned the ionic structure [(Me2N)2P]+[AlCl4]-. The related compound Me2NPCl2.AlCl3 is assigned the structure [Me2NPCl]+[AlCl4]-. Salts of (Me2N)2P+ containing counterions such as PF6-, B2F7-, GaCl4-, and FeCl4- were prepared along with the GaCl4- salt of the Me2NPCl+ cation. The P in the cation Me2NPCl+ is the most deshielded P atom yet recorded. It has a chemical shift of -325 ppm from H3PO4. Both dicoordinate P cations are strong Lewis acids combining with a base such as (R2N)3P to give previously described cations such as [(R2N)3P-P(NR2)Y]+ where Y is NR2 or Cl. The dicoordinate

cations can also serve as ligands toward the metal atoms of metal carbonyls. Evidence for an N-P pπ-pπ bond is found with (R2N)2P+.

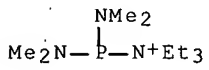
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 73

IT Lewis acids
RL: RCT (Reactant); RACT (Reactant or reagent)
(phosphorus dicoordinate cations as)

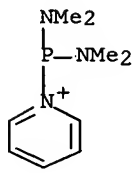
IT 52653-69-7P 60594-82-3P 60594-84-5P 60594-92-5P 60607-14-9P
61770-32-9P 61770-33-0P 61770-34-1P 61770-35-2P
61770-36-3P 61788-02-1P 61788-03-2P 61788-05-4P
61788-06-5P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 61770-33-0P 61770-34-1P 61770-36-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

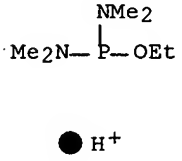
RN 61770-33-0 HCAPLUS
CN Phosphinaminium, 1,1-bis(dimethylamino)-N,N,N-triethyl- (9CI) (CA INDEX NAME)



RN 61770-34-1 HCAPLUS
CN Pyridinium, 1-[bis(dimethylamino)phosphino]- (9CI) (CA INDEX NAME)



RN 61770-36-3 HCAPLUS
CN Phosphorodiamidous acid, tetramethyl-, ethyl ester, conjugate monoacid (9CI) (CA INDEX NAME)



L51 ANSWER 18 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1972:559645 HCAPLUS Full-text
DOCUMENT NUMBER: 77:159645

TITLE: Lewis basicity of some difluorophosphines toward borane
AUTHOR(S): Foester, R.; Cohn, Kim
CORPORATE SOURCE: Dep. Chem., Michigan State Univ., East Lansing, MI, USA
SOURCE: Inorganic Chemistry (1972), 11(11), 2590-3
CODEN: INOCAJ; ISSN: 0020-1669
DOCUMENT TYPE: Journal
LANGUAGE: English

AB MeSPF2, (MeS)2PF, MePF2·BH3, MeSPF2·BH3, and Me2PF·BH3 were prepared and characterized by 19F, 11B, 1H, and 31P NMR and ir spectroscopy as well as by stoichiometric data. Mass spectral data were also used to help characterize MeSPF2 and (MeS)2PF. A series of base displacement reactions established the base strengths toward borane as MePF2 > Me2NPF2 > MeOPF2 > MeSPF2 ≥ (MeS)2PF while 1JBP for the fluorophosphine-borane adducts decreases in the series Me2NPF2 > MeOPF2 > MePF2 > MeSPF2 > (MeS)2PF. The basicity of MePF2 is not mirrored by the value of the 1JBP coupling constant

CC 78-8 (Inorganic Chemicals and Reactions)

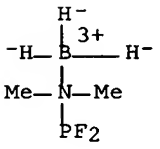
IT Lewis bases
RL: RCT (Reactant); RACT (Reactant or reagent)
(fluorophosphines as, with borane)

IT 2851-73-2P 35512-81-3P 35512-89-1P 38627-26-8P 38627-27-9P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 2851-73-2P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 2851-73-2 HCAPLUS

CN Boron, (dimethylphosphoramidous difluoride-N)trihydro-, (T-4)- (9CI) (CA INDEX NAME)



L51 ANSWER 19 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1967:28870 HCAPLUS Full-text
DOCUMENT NUMBER: 66:28870
ORIGINAL REFERENCE NO.: 66:5511a,5514a
TITLE: Reaction of insertion of a carbonyl group in transition metal complexes by the action of a third coordinating species: synthesis of π-cyclopentadienyltricarbonylacetylmolybdenum or-tungsten derivatives
AUTHOR(S): Capron-Cotigny, Ginette; Poilblanc, Rene
CORPORATE SOURCE: Fac. Sci., Toulouse, Fr.
SOURCE: Comptes Rendus des Seances de l'Academie des Sciences, Serie C: Sciences Chimiques (1966), 263(15), 885-7
CODEN: CHDCAQ; ISSN: 0567-6541
DOCUMENT TYPE: Journal
LANGUAGE: French

AB Lewis bases reacted readily (20°-60°) and quant. with π-cyclopentadienyl carbonyls of Mo or W containing an entirely organic ligand, e.g. Me, in a manner termed insertion.. π-C5H5WAc(CO)2PEt3, m. 42°, and IPEt3, m. 98°, IP[NMe2]3, m. 120°, and IP(OMe)3 where I is π-C5H5MoAc(CO)2- were prepared and their structures established by ir and N.M.R. studies.

CC 29 (Organometallic and Organometalloidal Compounds)

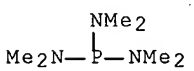
IT Bases, uses and miscellaneous
RL: USES (Uses)
(Lewis, carbonyl group insertion in transition metal complexes by rearrangement in presence of)

IT 554-70-1DP, Phosphine, triethyl-, complexes with molybdenum and tungsten
1608-26-0DP, Phosphorous triamide, hexamethyl-, molybdenum complexes 12110-00-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 1608-26-0DP, Phosphorous triamide, hexamethyl-, molybdenum complexes
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

RN 1608-26-0 HCAPLUS

CN Phosphorous triamide, N,N,N',N',N'',N''-hexamethyl- (CA INDEX NAME)



L51 ANSWER 20 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1965:401475 HCAPLUS Full-text

DOCUMENT NUMBER: 63:1475

ORIGINAL REFERENCE NO.: 63:231b-c

TITLE: Reactions giving zinc hydrogen ferrocyanide and its method of preparation and ion exchange properties

AUTHOR(S): Tananaev, I. V.; Korol'kov, A. P.

CORPORATE SOURCE: M. V. Lomonosov Inst. Fine Chem. Technol., Moscow

SOURCE: Izvestiya Akademii Nauk SSSR, Neorganicheskie Materialy (1965), 1(1), 100-7
CODEN: IVNMAW; ISSN: 0002-337X

DOCUMENT TYPE: Journal

LANGUAGE: Russian

AB Solubility detns., potentiometric and conductometric titrns., and determination of the apparent vols. of precipitate show that the reaction of ZnSO4 with H4[Fe(CN)6] occurs in 2 steps, giving first Zn2[Fe(CN)6] and then H2Zn3[Fe(CN)6]2. In dilute solution the 2nd step is slow because an insol. film of product forms on the surface of the intermediate. With concentrated solns. both steps are rapid. In the presence of H2SO4 only the acid salt is formed. The precipitate peptizes on prolonged washing. The acid salt will exchange H+ for Zn++ from solution

CC 14 (Inorganic Chemicals and Reactions)

IT Base-exchanging substances or Cation-exchanging substances
(zinc hexacyanoferrate(II) (Zn3H2[Fe(CN)6]2) as)

IT 19584-62-4P, Zinc hexacyanoferrate(II), Zn3H2[Fe(CN6]2
RL: PREP (Preparation)
(formation and base-exchanging properties of)

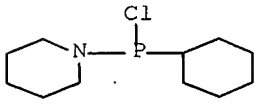
IT 2453-13-6P, Piperidine, 1,1'-(cyclohexylphosphinidene)di- 2453-13-6P, Phosphine, cyclohexyldipiperidino- 2453-16-9P, Phosphinous

chloride, cyclohexylpiperidino- 2453-17-0P, Piperidine, 1,1'-(dicyclohexyl-1,2-diphosphinediyl)di- 2453-19-2P, Phosphine sulfide, cyclohexyldipiperidino- 2774-06-3P, Phosphonium, cyclohexyldimethylpiperidino-, iodide 13408-63-4P, Ferrate(II), hexacyano- 92162-12-4P, Phosphorane, cyclohexyliododimethylpiperidino- 93815-30-6P, Phosphorane, cyclohexyliodomethyldipiperidino- 879646-69-2P, Phosphonium, cyclohexylmethyldipiperidino-, iodide
RL: PREP (Preparation)
(preparation of)

IT 2453-16-9P, Phosphinous chloride, cyclohexylpiperidino-
RL: PREP (Preparation)
(preparation of)

RN 2453-16-9 HCAPLUS

CN Phosphinous chloride, cyclohexylpiperidino- (7CI, 8CI) (CA INDEX NAME)



L51 ANSWER 21 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1964:45364 HCAPLUS Full-text

DOCUMENT NUMBER: 60:45364

ORIGINAL REFERENCE NO.: 60:7915f-h

TITLE: Aliphatic 1,3-diamines

INVENTOR(S): Scott, Francis L.

PATENT ASSIGNEE(S): Pennsalt Chemicals Corp.

SOURCE: 3 pp.

DOCUMENT TYPE: Patent

LANGUAGE: Unavailable

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 3119872		19640128	US	19601005

PRIORITY APPLN. INFO.: US 19601005

AB Aliphatic 1,3-diamines are prepared by catalytic hydrogenation of the condensation products of N2H4 with α,β-ethylenically unsatd. aldehydes or ketones. Aqueous alc. solns. of equimolar amts. of N2H4 and α,β-ethylenically unsatd. aldehydes or ketones at pH 6.0-8.0 are refluxed 0.5-10 hrs. Without isolation, the condensation products are hydrogenated at 50-100° and 100-300 lb./in.2 in the presence of a Raney Ni catalyst and a strong base as a cocatalyst (a base equivalent to, or stronger than NH4OH). In examples, 1,3-butanediamine was produced by condensing N2H4.H2O with crotonaldehyde, and hydrogenating the product with Raney Ni and NH3, and with Raney Ni and NaOH; 2-methyl-1,3- propanediamine was similarly produced from methacrolein; 1,3-pentanediamine from CH2:CHCOEt; 3-methyl-1,3-butanediamine from β-methylcrotonaldehyde; and 2-methyl-1,3-pentanediamine from 2-methyl-1-penten-3-one.

INCL 260583000

CC 33 (Aliphatic Compounds)

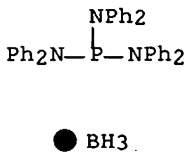
IT Bases
(catalysts from Raney Ni and strong, in hydrogenation of N2H4 reaction

products with α,β-ethylenic aldehydes and ketones)

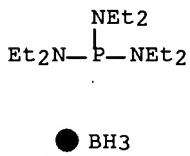
IT 589-37-7P, 1,3-Pentanediamine 2400-78-4P, 1,3-Propanediamine, 2-methyl-
7319-05-3P, Phosphorous triamide, hexamethyl-, compound with borane
15853-84-6P, Phosphorous triamide, hexaethyl-, compound with borane
94485-30-0P, Pyrrolidine, 1,1',1''-phosphinidynetri-, compound with borane
97437-22-4P, Piperidine, 1,1',1''-phosphinidynetri-, compound with borane
101520-00-7P, Phosphorous triamide, hexabutyl-, compound with borane
106847-15-8P, Phosphorous triamide, hexaphenyl-, compound with borane
107014-58-4P, Phosphorous triamide, hexacyclohexyl-, compound with borane
107065-13-4P, Phosphorous triamide, N,N',N''-trimethyl-N,N',N''-triphenyl-, compound with borane 108037-66-7P, Phosphorous triamide, hexabenzyl-, compound with borane 878792-56-4P, Borane, compound with hexaphenylphosphorous, triamide 878792-57-5P, Borane, compound with hexaethylphosphorous triamide 879631-34-2P, Borane, compound with 1,1',1''-phosphinidynetripiperidine 879631-48-8P, Borane, compound with hexacyclohexylphosphorous triamide 879631-55-7P, Borane, compound with hexabutylphosphorous triamide 879631-63-7P, Borane, compound with hexabenzylphosphorous triamide 879631-70-6P, Borane, compound with N,N',N''-trimethyl-N,N',N''-triphenylphosphorous triamide 879634-52-3P, Borane, compound with hexamethylphosphorous triamide
RL: PREP (Preparation)
(preparation of)

IT 878792-56-4P, Borane, compound with hexaphenylphosphorous, triamide 878792-57-5P, Borane, compound with hexaethylphosphorous triamide 879631-34-2P, Borane, compound with 1,1',1''-phosphinidynetripiperidine 879631-48-8P, Borane, compound with hexacyclohexylphosphorous triamide 879631-55-7P, Borane, compound with hexabutylphosphorous triamide 879631-63-7P, Borane, compound with hexabenzylphosphorous triamide 879631-70-6P, Borane, compound with N,N',N''-trimethyl-N,N',N''-triphenylphosphorous triamide 879634-52-3P, Borane, compound with hexamethylphosphorous triamide
RL: PREP (Preparation)
(preparation of)

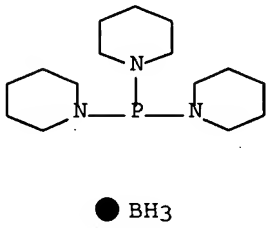
RN 878792-56-4 HCAPLUS
CN Borane, compd. with hexaphenylphosphorous, triamide (7CI) (CA INDEX NAME)



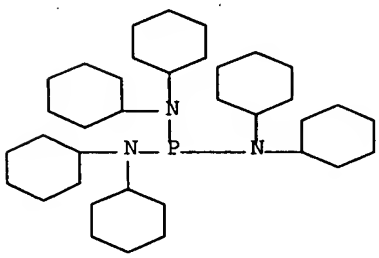
RN 878792-57-5 HCAPLUS
CN Borane, compd. with hexaethylphosphorous triamide (7CI) (CA INDEX NAME)



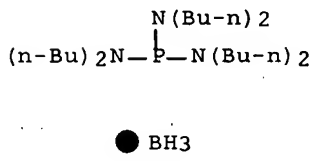
RN 879631-34-2 HCAPLUS
CN Borane, compd. with 1,1',1''-phosphinidynetripiperidine (7CI) (CA INDEX NAME)



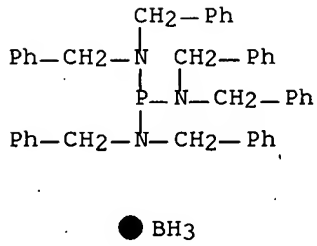
RN 879631-48-8 HCAPLUS
CN Borane, compd. with hexacyclohexylphosphorous triamide (7CI) (CA INDEX NAME)



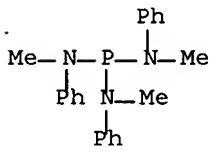
RN 879631-55-7 HCAPLUS
CN Borane, compd. with hexabutylphosphorous triamide (7CI) (CA INDEX NAME)



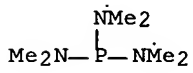
RN 879631-63-7 HCAPLUS
CN Borane, compd. with hexabenzylphosphorous triamide (7CI) (CA INDEX NAME)



RN 879631-70-6 HCAPLUS
CN Borane, compd. with N,N',N''-trimethyl-N,N',N''-triphenylphosphorous triamide (7CI) (CA INDEX NAME)



RN 879634-52-3 HCAPLUS
CN Borane, compd. with hexamethylphosphorous triamide (7CI) (CA INDEX NAME)



L51 ANSWER 22 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1964:9437 HCAPLUS Full-text
DOCUMENT NUMBER: 60:9437
ORIGINAL REFERENCE NO.: 60:1625c-f
TITLE: Action of tertiary nitrogen bases on several phosphoric acid chlorides
AUTHOR(S): Revel, Monique; Navech, Jacques; Vives, Jean Pierre
CORPORATE SOURCE: Fac. Sci., Toulouse
SOURCE: Bulletin de la Societe Chimique de France (1963), (10), 2327-31
CODEN: BSCFAS; ISSN: 0037-8968
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB POCl3 as well as alkyl and aryl phosphoryl dichlorides gave phosphorylammonium salts with tertiary amines. Their reaction with H2O and alcs. was studied; it

appears that they behave towards alcs. as phosphorylating agents. The appropriate halophosphate (0.5 mole) in about 1 l. dry Et2O was treated dropwise with stirring with a large excess tertiary amine, the mixture kept 10 min. and filtered, and the residue recrystd. from MeCN to yield the following phosphorylammonium salts POCl3.3C5H5N (I), POCl3.Et3N,.POCl3.Me3N, POCl3 triquinoline (II), POCl3 trilutidine, PhOP(O)Cl2 (III).2C5H5N (IV), III.-2Me3N, III.2Et3N, ClCH2CH2OP(O)Cl2 (V).2C5H5N, V.2Me3N, V.2Et3N, EtOP(O)Cl2 (VI).2C5H5N, VI.2Me3N, VI.2Et3N, VI diquinoline, VI dilutidine, (BrCH2CH2O)(EtO)P(O)Cl.Me3N (in C6H6), (ClCH2CH2O)(PhO)P(O)Cl.Me3N (in C6H6). II dissolved in the min. amount H2O, diluted after several hrs. with 100 vols. H2O, and chromatographed two-dimensionally on paper demonstrated the formation of H3PO4 and quinoline-HCl. IV gave similarly PhOP(O)(OH)2 and [PhO(HO)P(O)]2O. IV dissolved in excess MeOH and evaporated after several hrs. in vacuo gave an oily residue, which deposited a mixture of methyl phenyl phosphorylpyridinium chloride and pyridinium methomethyl- phenylphosphate. The oily mixture dissolved in N HCl, kept 2-3 hrs., and evaporated, and the residue extracted with Et2O gave oily C4H9O4P which in a little H2O with excess BaCO3 gave the Ba salt, C14H16O8P2Ba. IV dissolved in excess MeOH and evaporated and the oily residue dissolved in a small amount of H2O, diluted after several hrs. with 100 volume H2O, and chromatographed showed the presence of PhOP(O)(OH)2, MeOP(O)(OH)2, and C5H5N.HCl. I gave similarly with MeOH an oil, C2H7O4P, which yielded the Ba salt (C2H7OP)2Ba. II dissolved in MeOH, hydrolyzed, diluted with H2O, and chromatographed showed the presence of (MeO)2P(O)(OH) and quinoline-HCl.

CC 35 (Noncondensed Aromatic Compounds)

IT Amines
(reactions of tertiary, with POCl3 or phosphorodichloridic acid esters)

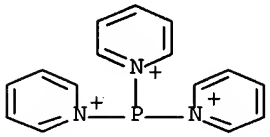
IT 813-78-5P, Methyl phosphate, (MeO)2(HO)PO 4009-39-6P, Methyl phenyl phosphate, (MeO)(PhO)(HO)PO 16368-97-1P, Phosphoric acid, bis(2-ethylhexyl) Ph ester 17323-82-9P, Methyl barium phosphate, [(MeO)2PO2]2Ba 17323-82-9P, Barium methyl phosphate, Ba[O2P(OMe)2]2 91772-29-1P, Ammonium, trimethylphosphono, chloride, 2-bromoethyl Et ester 94628-65-6P, Ammonium, trimethylphosphono, chloride, 2-chloroethyl Ph ester 95725-60-3P, Pyridinium, 1,1'-phosphinicobis[- chloride], Et ester 95844-08-9P, 1-Methylpyridinium methyl phenyl phosphate 95875-35-7P, 1-Phosphonopyridinium chloride, methyl phenyl ester 96932-87-5P, Methyl barium phenyl phosphate, [(MeO)(PhO)PO2]2Ba 96932-87-5P, Barium methyl phenyl phosphate, Ba[O2P(OPh)(OMe)]2 97195-74-9P, Pyridinium, 1,1'-phosphinicobis[- chloride], Ph ester 97212-64-1P, Pyridinium, 1,1'-phosphinicobis[- chloride], 2-chloroethyl ester 98248-59-0P, Pyridinium, 1,1'-phosphinicobis[2,6-dimethyl- chloride], Et ester 740043-22-5P, Ammonium, phosphinicobis[trimethyl-, 2-chloroethyl ester 803648-46-6P, Ammonium, phosphinicobis[triethyl-, 2-chloroethyl ester 803650-97-7P, Ammonium, phosphinicobis[trimethyl-, Ph ester 804462-01-9P, Ammonium, phosphinicobis[triethyl-, Ph ester 805195-44-2P, Ammonium, phosphinicobis[triethyl-, Et ester 821008-52-0P, Pyridinium, 1,1',1''-phosphinylidynetris, [- chloride] 856584-14-0P, Ammonium, phosphinylidynetris[triethyl-, chloride
RL: PREP (Preparation)
(preparation of)

IT 10025-87-3, Phosphoryl chloride 98741-61-8, Phosphorodichloridic acid, diester with α,α'-diethyl-4,4'-stilbenediol
(reaction with tertiary amines)

IT 821008-52-0P, Pyridinium, 1,1',1''-phosphinylidynetris, [- chloride] 856584-14-0P, Ammonium, phosphinylidynetris[triethyl-, chloride
RL: PREP (Preparation)
(preparation of)

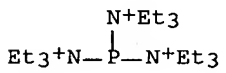
RN 821008-52-0 HCAPLUS

CN Pyridinium, 1,1',1''-phosphinylidynetris, [- chloride] (7CI) (CA INDEX NAME)



●3 Cl⁻

RN 856584-14-0 HCAPLUS
CN Ammonium, phosphinylidynetris[triethyl-, chloride (7CI) (CA INDEX NAME)



● Cl⁻

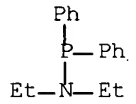
L51 ANSWER 23 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1962:476076 HCAPLUS Full-text
DOCUMENT NUMBER: 57:76076
ORIGINAL REFERENCE NO.: 57:15145a-b
TITLE: Preparation and reactions of some phosphobetaines
AUTHOR(S): Denney, Donald B.; Smith, Lois Chrisbacher
CORPORATE SOURCE: Rutgers Univ., New Brunswick, NJ
SOURCE: Journal of Organic Chemistry (1962), 27, 3404-8
CODEN: JOCEAH; ISSN: 0022-3263
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB Triphenylphosphine has been allowed to react with chloroacetic acid, β-chloropropionic acid, and α-chlorobutyric acid. In each case the carboxyalkyltriphenylphosphonium salt was obtained. The salt from chloroacetic acid decarboxylated on heating or on treatment with base. The two other salts on treatment with base gave stable phosphobetaines. The chemistry of these materials is discussed. Triphenylphosphine and bromoacetic acid reacted, under several sets of conditions, to give triphenylphosphine oxide and acetyl bromide.

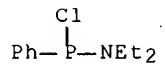
CC 33 (Organometallic and Organometalloidal Compounds)

IT 1031-15-8P, Phosphonium, methyltriphenyl, chloride 1636-14-2P, Phosphonous diamide, N,N,N',N'-tetraethyl-P-phenyl- 1636-15-3P, Phosphinous amide, N,N-diethyl-P,P-diphenyl- 2129-89-7P, Phosphine oxide, methyldiphenyl- 4073-31-8P, Phosphonamidous chloride, N,N-diethyl-P-phenyl- 4365-60-0P, Phosphonium, (2-carboxyethyl)triphenyl-, hydroxide, inner salt 6143-71-1P, Phosphonous diamide, N,N,N',N'-tetramethyl-P-phenyl- 7343-26-2P, Phosphonium, (carboxymethyl)triphenyl-, chloride 36626-29-6P, Phosphonium, (2-carboxyethyl)triphenyl-, chloride 60633-15-0P, Phosphonium,

(3-carboxypropyl)triphenyl-, hydroxide, inner salt
60633-18-3P, Phosphonium, (3-carboxypropyl)triphenyl-, chloride
88637-36-9P, Phosphonous diamide, N,N-diethyl-P-phenyl-N',N'-dipropyl-
93137-76-9P, Phosphonous diamide, N,N,-diethyl-N',N'-dimethyl-P-phenyl-
94375-84-5P, Phosphonous diamide, P-phenyl-N,N,N',N'-tetrapropyl-
RL: PREP (Preparation)
(preparation of)
IT 1636-15-3P, Phosphinous amide, N,N-diethyl-P,P-diphenyl-
4073-31-8P, Phosphonamidous chloride, N,N-diethyl-P-phenyl-
RL: PREP (Preparation)
(preparation of)
RN 1636-15-3 HCAPLUS
CN Phosphinous amide, N,N-diethyl-P,P-diphenyl- (CA INDEX NAME)



RN 4073-31-8 HCAPLUS
CN Phosphonamidous chloride, N,N-diethyl-P-phenyl- (CA INDEX NAME)



L51 ANSWER 24 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1961:81609 HCAPLUS Full-text
DOCUMENT NUMBER: 55:81609
ORIGINAL REFERENCE NO.: 55:15431a-f
TITLE: Reactions of naphthols and naphthylamines with bisulfites (Bucherer reaction). V. Carbazole synthesis from naphthols or naphthylamines with phenylhydrazine and bisulfites
AUTHOR(S): Rieche, Alfred; Seeboth, Helmuth
SOURCE: Ann. (1960), 638, 81-92
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 55:81609

AB α-Naphthols or α-naphthylamines react with $NaHSO_3$ and $PhNHNH_2$ in aqueous solution to form 1-tetralone-3-sulfonic acid phenylhydrazones (XIV). These compds. are converted (influence of acids) partially to 1,2-benzocarbazole and partially to diamino compds. Bases cause conversion to phenylazonaphthalene or (also) diamino compds. Thus, 27 g. naphthionic acid is refluxed 6 h. with 11 g. $PhNHNH_2$ and 200 g. 38% $NaHSO_3$ solution, the product (after cooling) filtered, slurried in 200 mL. concentrated NaCl solution and filtered again. The crystals are dissolved in 350 mL. H_2O and enough $(AcO)_2Ba$ solution added to precipitate all the sulfite and sulfate. The mixture is filtered and the filtrate treated with cation exchanger (Wofatit F) to convert the product to the free acid. Then 10% $KHCO_3$ solution is added dropwise until the neutral point is reached. After acidification with a few ml. AcOH, the solution is

evaporated in vacuo. The yellow-brown residue is dissolved in 50 mL. H2O, the solution treated with C, filtered, and 100 mL. EtOH added to the filtrate to give 5.6 g. white needles of V. V (4.4 g.) is refluxed 20 min. with 100 mL. 20% KOH to give orange crystals, filtered off, and washed (cold H2O); the dry, pulverized compound (2.6 g.) is extracted twice with Et2O; from the deep red Et2O-extract is obtained (after evaporation) 1.3 g. 1-phenylazonaphthalene, red, m. 69.5° (EtOH). The Et2O-insol. portion is K 1-phenylazonaphthalene-4-sulfonate, orange plates (EtOH). V (8 g.) is heated (steam bath) 6 h. with 100 mL. 30% HCl. The mixture turns deep-red at 1st, finally becoming yellow, and a grayish-white mass, white needles, and brown flakes precipitate The whole mixture is extracted with 100 mL. Et2O. The dark Et2O solution is shaken with 40 mL. 2N NaOH and the extracted Et2O solution evaporated to dryness to give 0.6 g. 1,2-benzocarbazole, m. 225° (after sublimation). The acid aqueous phase is filtered to give the insol. 1-amino-2-(4-aminophenyl)naphthalene-4-sulfonic acid (XV), purified by slurrying with 25 mL. 96% EtOH, twice dissolving the insol. material with 2N NaOH, and precipitating with HCl, white needles, m. 280-2°. XV (via diazotization) gives the Na salt of 2-phenylnaphthalene-4-sulfonic acid (XVI)·2H2O, treated with concentrated HCl (16 h. at 140°) in a closed tube to give 2-phenylnaphthalene. Treatment of β-naphthol or β-naphthylamine with NaHSO3 and PhNHNH2 in H2O gives 3,4-benzocarbazole; 1,2-dihydro-3,4-benzocarbazole-2-sulfonic acid forms as an intermediate. This carbazole synthesis was found to proceed analogously to the indole synthesis of Emil Fischer.

CC 10F (Organic Chemistry: Condensed Carbocyclic Compounds)

IT 1,2-Naphthalenedisulfonic acid, 1,2,3,4-tetrahydro-4-oxo-, phenylhydrazone, di-K salt
RL: PREP (Preparation)

IT 205-25-4P, 7H-Benzo[c]carbazole 239-01-0P, 11H-Benzo[a]carbazole 2653-70-5P, 1-Naphthaleneazobenzene 92967-07-2P, 2-Naphthalenesulfonic acid, 1,2,3,4-tetrahydro-4-oxo-, phenylhydrazone 114380-67-5P, Naphthionic acid, 3-(p-aminophenyl)- 114380-68-6P, Pyridine, compound with 3-(p-aminophenyl)naphthionic acid 114380-68-6P, Naphthionic acid, 3-(p-aminophenyl)-, compound with pyridine 116568-54-8P, 1-Naphthalenesulfonic acid, 3-phenyl-, sodium salt 856639-35-5P, Hydrazine, phenyl-, compound with 5,6-dihydro-7P-benzo[c]carbazole-5-sulfonic acid 857220-60-1P, 1-Naphthalenesulfonic acid, 4-phenylazo-, potassium salt
RL: PREP (Preparation)
(preparation of)

IT 112486-22-3, 7H-Benzo[c]carbazole-5-sulfonic acid, 5,6-dihydro-
(salts)

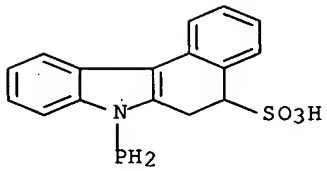
IT 856639-35-5P, Hydrazine, phenyl-, compound with 5,6-dihydro-7P-benzo[c]carbazole-5-sulfonic acid
RL: PREP (Preparation)
(preparation of)

RN 856639-35-5 HCAPLUS

CN Hydrazine, phenyl-, compd. with 5,6-dihydro-7P-benzo[c]carbazole-5-sulfonic acid (6CI) (CA INDEX NAME)

CM 1

CRN 856639-34-4
CMF C16 H14 N O3 P S



CM 2

CRN 100-63-0
CMF C6 H8 N2

$H_2N—NH—Ph$

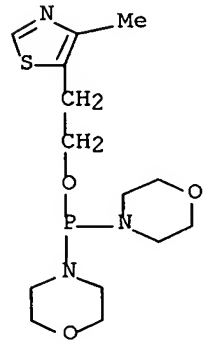
L51 ANSWER 25 OF 25 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1958:97992 HCAPLUS Full-text
DOCUMENT NUMBER: 52:97992
ORIGINAL REFERENCE NO.: 52:17275i,17276a-i,17277a-b
TITLE: Phosphoramidic halides. Phosphorylating agents derived from morpholine
AUTHOR(S): Montgomery, H. A. C.; Turnbull, J. H.
CORPORATE SOURCE: Univ. Birmingham, UK
SOURCE: Journal of the Chemical Society (1958) 1963-7
CODEN: JCSOA9; ISSN: 0368-1769
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
OTHER SOURCE(S): CASREACT 52:97992

AB cf. C.A. 51, 16488i. Mild acid hydrolysis of phosphorodimorpholidates (I), (C4H8NO)2PO2R, gave the corresponding dihydrogen phosphates (II), RH2PO4, conveniently isolated as their cyclohexylammonium (IIa) or phenylacetamidinium (IIb) salts. A sterically hindered tertiary base was used throughout to avoid dealkylation. Phosphoramidic halides (III), (PhNR)2POX, derived from aromatic amines appeared to have limited value as phosphorylating agents. POBr3 was prepared by the method of Gerrard, et al. (C.A. 41, 7292f), and 2,6-lutidine (IV) was purified according to Biddiscombe, et al. (C.A. 49, 5465h). Morpholine (35 g.) added gradually to 29 g. POBr3 in 120 ml. CHCl3 at 10° and the mixture stirred 4 hrs. at room temperature, the filtered solution evaporated to 50 ml. and kept at 0° (dry atmospheric) gave a suitable phosphorylation preparation of phosphorodimorpholidic bromide (V). H2C:CHCH2OH (3 ml.) in 4 ml. IV kept 5 hrs. with 17.4 ml. V (from 6.4 g. POBr3) and the volatile components evaporated in vacuo, the residue diluted with 40 ml. Et2O, and filtered gave 2.6 g. I (R = H2C:CHCH2), b0.002 113-17°, n17D 1.4930. Similarly were prepared I (R = Et) (IVa), b0.003 102-8°, m. 48° and I (R = PhCH2CH2), n18.5D 1.5231 (chromatographed on silica gel and eluted with alc.). Cyclohexanol phosphorylated in the presence of (PhCH2)3N, the product chromatographed on silica gel, and crystallized (C6H6-petr. ether) gave I (R = cyclohexyl) (IVb), m. 53°. Similarly was prepared I (R = Me2C:CHCH2) as a sirup, C13H25N2O4P. IV (6 ml.) and 15 ml. V (from 4.5 g. POBr3) in 15 ml. CHCl3 warmed 15 min. at 40° with 2.0 g. 2-(4-methyl-5-thiazolyl)ethanol HCl salt (cf. Williams, et al., C.A. 29, 33819) and the mixture treated with 0.3

ml. H2O and excess petr. ether, the filtered solution evaporated, and the residue chromatographed in C6H6 over silica gel gave 1.5 g. I [R = 2-(4-methyl-5-thiazolyl)ethyl], C14H24N3O4PS; dipicrolonate, m. 181° (alc.-Et2O). Morpholine (71 g.) added slowly to 19 ml. POCl3 in 200 ml. C6H6 at 10-20° and the mixture stirred 3 hrs., the filtered solution evaporated, and the residue distilled in 10 g. portions gave 32 g. phosphorodimorpholidic chloride (VI), b0.02 137-40° m. 81° (cyclohexane). EtOH (7 ml.), 4.5 ml. IV, and 8.5 g. VI refluxed 16 hrs. and the mixture evaporated, the residue extracted with Et2O, and the product distilled gave 4 g. Ia. Cholesterol (5.4 g.), 10 ml. C5H5N, and 3.5 g. VI heated 17 hrs. at 76° (CCl4 bath) and the product diluted with H2O, the mixture filtered, and the precipitate crystallized (petr. ether) gave 3.7 g. I (R = cholesteryl) (VIa), m. 153°. Treatment of 1 mole Cl2PO2Ph with 4 moles morpholine at 20-30° and crystallization (cyclohexane) of the product gave I (R = Ph) (VIb), m. 84° (cf. Audrieth and Toy, C.A. 36, 44326). Similarly, 100 mg. cholesteryl phosphorodichloridate (cf. M., et al., C.A. 51, 6668h) warmed 1 hr. with 0.07 ml. morpholine in 0.8 ml. C6H6 and the filtered solution evaporated gave VIa. EtOH (23 g.) stirred 30 min. in 153 g. POCl3 at 0° and the product distilled gave 41 g. Cl2PO2Et (VII), b12 62-5°. VII (13 g.) in 200 ml. Et2O at 10-15° treated with 27 g. morpholine and the filtered solution evaporated gave 7.2 g. IVa. Cyclohexanol (10 g.) and 11 g. IV in 20 ml. CCl4 kept 1 hr. at 0-10° with 15 g. POCl3 in 100 ml. CCl4 and the filtered solution evaporated gave 20 g. cyclohexylphosphorodichloridate (VIII), decomposed on vacuum distillation to cyclohexene. VIII (10 g.) in 160 ml. CCl4 treated with 17 g. morpholine at 0-10° and the mixture stirred 2 hrs. at room temperature, the filtered solution evaporated, and the product crystallized (C6H6-petr. ether) yielded 10 g. hygroscopic IVb. I (500 mg.) in 5 ml. H2O percolated in 1-2 hrs. through Amberlite IR-120 resin (H+ form) at 60° and the filtrates evaporated gave II [R, m.p. (solvent), IIa (IIb) and m.p. (solvent) given]: Et, sirup, 2 C6H13N, 188° (dilute Me2CO) [2 C8H10N, 157° (alc. Et2O)]; Ph, 94° (CHCl3),2 C6H13N, 211°; cyclohexyl, 86° (C6H6-C6H12), 2 C6H13N, 212° (alc.); H2C:CHCH2, sirup, 2 C6H13N, 175° (decomposition) (dilute Me2CO); PhCH2CH2, sirup, C6H13N, 177° (dilute Me2CO). VIb (530 mg.) in 5 ml. H2O treated 30 min. with Amberlite IR-120 resin (H+ form) and the solution evaporated yielded 290 mg. C4H8NOPHO2R; cyclohexylammonium salt, C10H14NO4P.C6H13N, m. 202° (dilute Me2CO). Cyclohexylphosphorodichloridate (10 g.) in 50 ml. CCl4 treated 30 min. with 8.5 g. tert-BuOH and 1.0 ml. H2O at 50° and the solvent evaporated, the oily residue taken up in a slight excess of saturated aqueous NaHCO3 and the solution filtered through Amberlite, evaporated, and the residue crystallized (CHCl3C6H12) gave 4.8 g. H2P(C6H11)O4, m. 85°. C6H11OH (20 g.) and 21 g. IV in 40 ml. CCl4 gradually added at 0° to 15 g. POCl3 and 2 g. IV in 200 ml. CCl4 and the mixture kept at room temperature overnight, the filtered solution shaken at 0° with M KHSO4 and the dried (Na2SO4) solution evaporated, the residue heated 30 min. at 90° with 10.5 g. tert-BuOH and the solution evaporated in vacuo at room temperature, the residue extracted with 80 ml. 2.5N NaOH, and the extract acidified with AcOH and treated with C6H11NH2 gave 4.7 g. cyclohexylammonium dicyclohexyl phosphate, C12H23O4P.C6H13N, m. 211° (EtOH-Et2O). Solvolysis of 180 mg. VIa by refluxing 50 hrs. in AcOH and diluting of the product with H2O gave 105 mg. 3β-acetoxy-5-cholestene (M., et al., loc. cit.), also obtained by heating VIa 20 min. at 100° with 90% HCO2H or 15 min. at 90° with 2N HCl in 80% AcOH. PhNHMe (214 g.) refluxed 1 hr. in 220 ml. PhMe with 77 g. POCl3 and the cooled, filtered solution evaporated and distilled yielded 90 g. III (R = Me, X = Cl) (IX), b0.03 149-51°, n20D 1.5851. IV (4.5 ml.) and 9.8 g. IX refluxed 16 hrs. in 8 ml. alc. and the mixture evaporated, the residue extracted with Et2O and the product distilled yielded 5.3 g. III (R = Me, X = OEt) (X), b0.03 145-8°, n18D 1.5631. X was recovered unchanged after prolonged treatment with Amberlite suggesting that delocalization of the lone-pair electrons on N by aromatic resonance protects the P-N bond from proton attack.

CC 10G (Organic Chemistry: Heterocyclic Compounds)

IT 5-Thiazoleethanol, 4-methyl-, dipicrolonate
Phosphonic acid, morpholino-, cyclohexylamine salt
RL: PREP (Preparation)
IT 2817-45-0, Phosphoramidic acid 856792-24-0,
1,5-Benzothiazepine, 2,3-dihydro-
(derivs.)
IT 7664-38-2, Phosphoric acid 13779-49-2, Phosphorodichloridic acid
(esters, and other derivs.)
IT 6913-01-5, Phosphinic acid, dimorpholino-
(esters, hydrolysis of)
IT 701-64-4P, Phenyl phosphate, (PhO)(HO)2PO 1498-51-7P, Ethyl phosphorodichloridate 3694-53-9P, Phosphorodiamidic acid, N,N'-dimethyl-N,N'-diphenyl-, ethyl ester 6787-44-6P, Phosphinic bromide, dimorpholino- 6901-51-5P, Cholesteryl phosphorodichloridate 7264-90-6P, Phosphinic chloride, dimorpholino- 7264-91-7P, Allyl alcohol, dimorpholinophosphinate 7264-92-8P, Allyl phosphate, (C3H5O)(HO)2PO, bis(cyclohexylamine) salt 18110-43-5P, Phenethyl phosphate, (C8H9O)(HO)2PO 25022-72-4P, Allyl phosphate, (C3H5O)(HO)2PO 46731-55-9P, Phosphonic acid, morpholino-, phenyl ester 57775-14-1P, Phenyl phosphate, (PhO)(HO)2PO, compds. with cyclohexylamine 58245-46-8P, Phosphorodiamidic chloride, N,N'-dimethyl-N,N'-diphenyl- 86240-42-8P, Cyclohexyl phosphorodichloridate 109446-70-0P, Phenethyl phosphate, cyclohexylamine salt 112688-81-0P, 2-Buten-1-ol, 3-methyl-, dimorpholinophosphinate 113977-26-7P, Cyclohexanol, dimorpholinophosphinate 114794-67-1P, Phenethyl alcohol, dimorpholinophosphinate 860175-22-0P, 5-Thiazoleethanol, 4-methyl-, dimorpholinophosphinate 860226-48-8P, Picrolonic acid , compound with 2-(4-methyl-5-thiazolyl)ethyl dimorpholinophosphinate
RL: PREP (Preparation)
(preparation of)
IT 1623-22-9P, Cyclohexyl phosphate
RL: PREP (Preparation)
(preparation of (C6H11O)2(HO)PO and (C6H11O)(HO)2PO and their cyclohexylamine salts)
IT 860175-22-0P, 5-Thiazoleethanol, 4-methyl-, dimorpholinophosphinate
RL: PREP (Preparation)
(preparation of)
RN 860175-22-0 HCAPLUS
CN 5-Thiazoleethanol, 4-methyl-, dimorpholinophosphinate (6CI) (CA INDEX NAME)



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                SEL RN

     FILE 'REGISTRY' ENTERED AT 11:09:48 ON 05 OCT 2007
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L3            23 SEA ABB=ON  PLU=ON  L2 AND P/ELS
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L4       1580012 SEA ABB=ON  PLU=ON  P/ELS
L5              STR
L*** DEL        STR L5
L6            50 SEA SUB=L4 SSS SAM L5
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     FILE 'MARPAT' ENTERED AT 11:14:56 ON 05 OCT 2007

     FILE 'CASREACT' ENTERED AT 11:15:21 ON 05 OCT 2007
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     FILE 'CAPLUS' ENTERED AT 11:43:37 ON 05 OCT 2007
                E PHOSPHINES/CT
                E E3+ALL

     FILE 'HCAPLUS' ENTERED AT 11:44:02 ON 05 OCT 2007
L9         68779 SEA ABB=ON  PLU=ON  PHOSPHINES+PFT,NT/CT
L10            1 SEA ABB=ON  PLU=ON  L1 AND L9
                D KWIC
L11         7867 SEA ABB=ON  PLU=ON  PHOSPHINES+PFT,NT/CT(L)PREP+NT/RL
L12            0 SEA ABB=ON  PLU=ON  L11 AND L1
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                E AMINOPHOSPHINES/CT
L13           0 SEA ABB=ON  PLU=ON  PHOSPHORUS ESTER DIAMIDE

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L15         446 SEA ABB=ON  PLU=ON  ?AMINOPHOSPHIN?/CNS
L16           0 SEA ABB=ON  PLU=ON  ?AMINOPHOSPHINE CHLORIDE/CNS
L17          33 SEA ABB=ON  PLU=ON  ?AMINOPHOSPHINE/CNS
L18           0 SEA ABB=ON  PLU=ON  PHOSPHORUS ESTER/CNS
L19           0 SEA ABB=ON  PLU=ON  PHOSPHORUSESTER/CNS
L20           6 SEA ABB=ON  PLU=ON  PHOSPHORUS(1W)ESTER/CNS
L21           0 SEA ABB=ON  PLU=ON  PHOSPHOESTER/CNS
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L23          50 SEA SUB=L4 SSS SAM L22
L24        6867 SEA SUB=L4 SSS FUL L22

     FILE 'CAPLUS' ENTERED AT 12:37:58 ON 05 OCT 2007
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L26           1 SEA ABB=ON  PLU=ON  L25 AND L1
                D HITSTR

     FILE 'HCAPLUS' ENTERED AT 12:40:26 ON 05 OCT 2007
L27      378500 SEA ABB=ON  PLU=ON  ACIDS+PFT,NT1/CT
L28        4202 SEA ABB=ON  PLU=ON  ACIDS+PFT,NT1/CT(L)REM/RL
L29       34370 SEA ABB=ON  PLU=ON  ACIDS+PFT,NT1/CT(L)PREP+NT/RL
L30         194 SEA ABB=ON  PLU=ON  L28 AND L29
L31           0 SEA ABB=ON  PLU=ON  L30 AND L1
L32           1 SEA ABB=ON  PLU=ON  L25 AND L1
L33           1 SEA ABB=ON  PLU=ON  L27 AND L1
L34           0 SEA ABB=ON  PLU=ON  L28 AND L1
L35           0 SEA ABB=ON  PLU=ON  L29 AND L1
L36       38378 SEA ABB=ON  PLU=ON  L28 OR L29
L37           0 SEA ABB=ON  PLU=ON  L36 AND L1
                E BASES+ALL/CT
L38       22956 SEA ABB=ON  PLU=ON  BASES+PFT,NT/CT
L39           1 SEA ABB=ON  PLU=ON  L38 AND L1
L40           9 SEA ABB=ON  PLU=ON  L25 AND L38
L41          65 SEA ABB=ON  PLU=ON  L27 AND L25
L42           1 SEA ABB=ON  PLU=ON  L41 AND L38
L43           1 SEA ABB=ON  PLU=ON  L42 AND L1
                E IONIC LIQUIDS/CT
                E E3+ALL
L44        5873 SEA ABB=ON  PLU=ON  IONIC LIQUIDS+PFT,NT/CT
                E IONIC FLUIDS/CT
L45           3 SEA ABB=ON  PLU=ON  L25 AND L44
L46           0 SEA ABB=ON  PLU=ON  L45 AND L1
L47           5 SEA ABB=ON  PLU=ON  L25 AND (L44 OR IONIC(2A)(LIQUID OR FLUID)
                OR (LIQUID OR MOLTEN)(2A)SALT)
L48           1 SEA ABB=ON  PLU=ON  L47 AND L1
L49          13 SEA ABB=ON  PLU=ON  L47 OR L40
L50          14 SEA ABB=ON  PLU=ON  L25 AND (L27 OR ACID) AND (L38 OR BASE)
                AND SALT
L51          25 SEA ABB=ON  PLU=ON  L49 OR L50

     FILE 'HCAPLUS' ENTERED AT 12:49:01 ON 05 OCT 2007
                D QUE L51
                D L51 IBIB ABS HITIND HITSTR TOT
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